

PFAS Sampling Report

TRC - Methanex Sites

PFAS Sampling Report

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Client: Taranaki Regional Council

Co No.: N/A

Prepared by

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13-Nov-2018

Job No.: 60584690

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Quality Information

Document PFAS Sampling Report

Ref 60584690

Date 13-Nov-2018

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Reviewed by Sean Hudgens

Revision History

Pov	Rev Revision Date Deta	Detaile	Authorised		
IVEV		Details	Name/Position	Signature	
1	13-Nov-2018	Final	Sarah Knowles Associate Director - Environment	Knowles	

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1.0 Introduction

This report has been prepared for Taranaki Regional Council (TRC) by AECOM New Zealand Limited (AECOM) in accordance with the proposal dated 11 July 2018. It documents sampling for per- and poly-fluoroalkyl substances (PFAS) undertaken from 21 to 23 August 2018 which comprised sampling of groundwater from selected monitoring wells at the following Methanex New Zealand Limited (Methanex) sites (the Sites): Motunui, Waitara Valley, Omata Tank Farms 1 and 2, and Port Taranaki.

The locations of the Sites are presented on Figure 1.

1.1 Objective

The objective of the sampling was to undertake an initial screen for the presence of PFAS in groundwater at the Sites.

2.0 Site Information

Location details for the Sites are summarised in Table 1 below.

Table 1 Site Information

Site name	Sample IDs	Site address	Map reference (NZTM)
Motunui	GW21 GW22 GW31 GW33 GW37 ¹ Control01	409 Main N Rd, Motunui	1711211E, 5683566N
Waitara Valley	GW3 GW5 GW8A GW10 GW46 GW47 Control02	184 Mamaku Road, Brixton	1708069E, 5679632N
Omata Tank Farm 1	GWOM1	315 Centennial Drive, Omata	1688166E, 5675594N
Omata Tank Farm 2	GW28 GW29	251 Centennial Drive, Omata	1688179E, 56746004N
Port Taranaki tank farm	GW9AA ² GW9B	198 Breakwater Road, Port Taranaki	1689077E, 5676491N

Notes:

NZTM - New Zealand Transverse Mercator

Site layout plans for the Motunui, Waitara Valley, Omata Tank Farm and Port Taranaki Tank Farm sites are presented in **Figures 2 to 5**.

¹ Monitoring well MW41 was originally selected but was unable to be sampled as it had collapsed; well MW37 was sampled instead.

² Monitoring well 9A was under water following overnight rain and therefore inaccessible; alternative well MW9AA was sampled instead.

Field Works 3.0

3.1 **Laboratory Selection**

TRC engaged AsureQuality Limited (AsureQuality) to complete PFAS analysis, at their Lower Hutt laboratory. AsureQuality is an ISO17025 accredited laboratory and was the only provider of PFAS analysis in New Zealand at the time the field works were undertaken. AsureQuality's PFAS methods comply with the Heads of Environmental Protection Authorities Australia and New Zealand (HEPA) PFAS National Environmental Management Plan, January 2018 (NEMP) and the United States Department of Defence (US DOD)/Department of Energy Quality Systems Manual for Environmental Laboratories.

3.2 Scope of Work

Sampling was undertaken on 21 to 23 August 2018, and comprised:

- Volatile organic compounds (VOC) concentrations in the headspace of each monitoring well were measured immediately after opening each well prior to sampling, using a photo-ionisation detector (PID).
- The total well depth, depth to groundwater, and the presence/absence of light non-aqueous phase liquid (LNAPL) were gauged using an electronic oil-water interface probe in each of the monitoring wells.
- Prior to sampling, groundwater was purged from the monitoring wells using the 'low flow' method to minimise turbidity3. The wells were purged for 15 to 25 minutes at approximate rates of 0.1 L/m, until field screening of the extracted groundwater for pH, temperature, electrical conductivity, oxidation/reduction potential, and dissolved oxygen, indicated that these parameters had stabilised. Turbidity was also monitored during purging. Between 1.5 L and 2.5 L of groundwater was purged from each well using dedicated high-density polyethylene (HDPE) and silicone tubing. Groundwater samples were then collected by pumping groundwater from approximately 0.5 metres (m) below static water level into laboratory prepared bottles⁴. The groundwater sampling field sheets are presented in Appendix A.
- The bottles were placed into chilled storage bins and sent to AsureQuality under AECOM chain of custody procedures, where they were analysed for PFAS. Chain of custody documentation is provided in Appendix B.
- Appropriate isolation and decontamination procedures were undertaken during sampling as per AECOM PFAS sampling protocols, with special care taken to eliminate the potential for contamination of sampling equipment, materials, and water samples with PFAS. AECOM PFAS sampling protocols have been developed in accordance with US DOD5, United States Environmental Protection Agency (US EPA)⁶ and United States Navy⁷ guidance documents, and include the use of a two-person team for groundwater sampling ("clean hands, dirty hands") in general accordance with US EPA Method 16698, where "clean hands" handle only sample bottles during sampling and "dirty hands" handle equipment.

³ Low flow purging could not be completed at well GW29 (Omata Tank Farm 2) as there was an insufficient pump tubing remaining at the end of the sampling event. Approximately 1 well volume of groundwater was purged with a PVC bailer.

⁴ A grab sample was collected by bailer from monitoring well GW29 (Omata Tank Farm 1).

⁵ Department of Defence, United States (DoD), October 2016. Bottle Selection and Other Sampling Considerations When Sampling for Per- and Poly-Fluoroalkyl Substances (PFAS).

⁶ US EPĂ, January 2010. USEPA Document EQASOP-GW 001, Low Stress (low flow) Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells, Version 3.

⁷ US Navy, September 2015. Field Sampling Protocols to Avoid Cross-contamination During Water Sampling for Perfluorinated Compounds (PFCs), Navy Guidance Document.

⁸ Method 1669: Sampling Ambient Water for Trace Metals at EPA Water Quality Criteria Levels, United States Environmental Protection Agency, July 1996.

- For quality assurance/quality control (QA/QC) purposes, the following samples were collected and analysed as described:
 - Duplicate groundwater sample QAQC01, collected from monitoring well Control01 (Motunui) during 'low flow' groundwater sampling, analysed for PFAS.
 - Field blank sample QAQC02, collected by filling sample bottle with laboratory supplied Type 1 reagent water near monitoring well Control01 (Motunui), not analysed.
 - Equipment blank sample QAQC03, collected by pouring laboratory supplied Type 1 reagent water over the oil-water interface probe and into a laboratory supplied sample bottle, after decontaminating the probe upon completion of groundwater sampling at Motunui, not analysed.
 - Trip blank sample QAQC04, laboratory supplied Type 1 reagent water in sealed laboratory supplied bottle, included in the chilled storage bin prior to dispatching the groundwater samples for Motunui and Waitara Valley to AsureQuality in August 2018, analysed for PFAS.
 - Duplicate groundwater sample QAQC05, collected from monitoring well Control02 (Waitara Valley) during 'low flow' groundwater sampling, analysed for PFAS.
 - Field blank sample QAQC06, collected by filling sample bottle with laboratory supplied Type1 reagent water near monitoring well Control02 (Waitara Valley), not analysed.
 - Equipment blank sample QAQC07, collected by pouring laboratory supplied Type 1 reagent water over the oil-water interface probe and into a laboratory supplied sample bottle, after decontaminating the probe upon completion of groundwater sampling at Waitara Valley, not analysed.
 - Duplicate groundwater sample QAQC08, collected from monitoring well GW9B (Port Taranaki) during 'low flow' groundwater sampling, analysed for PFAS.
 - Field blank sample QAQC09, collected by filling sample bottle with laboratory supplied Type 1 reagent water near monitoring well GW9B (Port Taranaki), not analysed.
 - Equipment blank sample QAQC10, collected by pouring laboratory supplied Type 1 reagent water over the oil-water interface probe and into a laboratory supplied sample bottle, after decontaminating the probe upon completion of groundwater sampling at Port Taranaki, not analysed.
- Purge water and decontamination water was containerised and relinquished into the custody of the Methanex laboratory staff.

4.0 Results

4.1 Groundwater Levels and Flow

Depth to groundwater measured during the August 2018 sampling event are presented in **Table 2**. Reduced groundwater levels are also presented for Waitara Valley, where top-of-casing (TOC) elevations were provided by TRC.

At Motunui, standing water levels ranged from 5.123 m below TOC (bTOC) at GW37 to 7.190 m bTOC at GW22.

At Omata Tank Farms 1 and 2 standing water levels ranged from 1.838 m bTOC at GWOM1 (Omata Tank Farm 1) to 9.018 m bTOC at GW29 (Omata Tank Farm 2).

At Port Taranaki, standing water levels ranged from 1.679 m bTOC at GW9B to 2.221 m bTOC at GW9AA.

At Waitara Valley, groundwater ranged between 0.999 m bTOC and 8.5 m bTOC. The inferred groundwater flow pattern based on the gauging data at Waitara Valley for August 2018 is presented in **Figure 6**. The data indicate shallow groundwater flows in a northeasterly direction towards the

Waitara River at a gradient ranging from approximately 0.03 m/m in the northern part of the site to approximately 0.05 m/m in the southern part of the site.

4.2 Field Observations

Monitoring well MW41 (Motunui) had been initially selected for sampling, but prior to the start of field works, AECOM was advised by Methanex that the well had collapsed. In its place, well MW37 (Motunui) was selected by TRC for sampling.

Monitoring well 9A (Port Taranaki), which had been initially selected for sampling, was under water following overnight rain and therefore inaccessible; alternative well MW9AA (Port Taranaki) was sampled in its place.

No foam or other visual evidence of PFAS presence was observed in groundwater during gauging, purging and sampling of any of the monitoring wells.

Headspace VOCs measured 6.3 parts per million (ppm) at monitoring well GW9AA (Port Taranaki), and an organic, marine odour was noted during gauging, purging and sampling of the well. Headspace VOCs measured in the other groundwater wells ranged from 0.0 ppm to 0.3 ppm.

The sealed wellheads were submerged in surface water accumulated in the manhole vaults at monitoring wells 9AA and 9B (Port Taranaki), and this water was bailed out prior to sampling to prevent entry of the surface water into the well. A sheen was also noted on the surface water in the manhole vault at monitoring well 9AA (Port Taranaki).

4.3 Analytical Results

The groundwater analytical results are presented in **Table 3**. The following points are noted:

Motunui

- Perfluorooctanoic acid (PFOA) was detected in the groundwater samples collected from GW21, GW22, GW31, and GW33 at concentrations of 0.017 μg/L, 0.0029 μg/L, 0.094 μg/L, and 0.67 μg/L, respectively.
- PFAS were not detected above laboratory limits of reporting (LORs) in the samples collected from GW37 or Control01.

Waitara Valley

- PFOA was detected in groundwater samples collected from GW8A and GW10 at concentrations of 0.004 µg/L and 0.0081 µg/L, respectively.
- PFAS were not detected above the LORs in the sample collected from GW3.
- PFAS were not detected in the groundwater samples collected from GW5, GW46, GW47, or Control02 above the higher laboratory LOR (0.010 μg/L) applied to these samples due to their high turbidity.

Omata Tank Farms 1 and 2

- PFOA was detected in the groundwater sample collected from GWOM1 (Omata Tank Farm 1) at a concentration of 0.0046 μg/L; perfluorohexane sulfonic acid (PFHxS) and perfluorooctane sulfonic acid (PFOS) were not detected above laboratory LORs in this sample.
- PFHxS, PFOS and PFOA were detected in the groundwater samples collected from GW28 and GW29 (Omata Tank Farm 2) at concentrations of 0.015 μg/L and 0.32 μg/L, 0.22 μg/L and 0.42 μg/L, and 0.018 μg/L and 0.044 μg/L respectively.

Port Taranaki

 PFOA was detected in the groundwater sample collected from GW9AA at a concentration of 0.020 μg/L; PFHxS and PFOS were not detected above the higher laboratory LOR (0.010 μg/L) applied to this sample due to its high turbidity. - PFHxS, PFOS, and PFOA were detected in the groundwater sample collected from GW9B at concentrations of 0.015 μg/L, 0.066 μg/L and 0.028 μg/L respectively.

4.3.1 Quality Assurance / Quality Control

Samples were transported to AsureQuality, under AECOM chain of custody procedures, for analysis.

Groundwater samples were collected from Motunui and Waitara Valley on 21 and 22 August 2018 respectively, and were received by AsureQuality on 23 August 2018. Groundwater samples were collected from Omata Tank Farms 1 and 2 and Port Taranaki on 23 August 2018 and were received by AsureQuality on 24 August 2018.

PFAS were not detected above laboratory LORs in the trip blank sample (QAQC 04) submitted with the Motunui and Waitara Valley samples, or the duplicate groundwater samples collected from Control01 (Motunui, QAQC01) and Control02 (Waitara Valley, QAQC05) during groundwater sampling.

The calculated relative percentage difference (RPD⁹) for detected PFAS concentrations reported for the primary and duplicate groundwater samples collected from monitoring well GW9B (Port Taranaki) is presented in **Table 4**. The RPD calculated for the primary and duplicate groundwater samples ranged from 0% to 6% and were within acceptable limits (less than 20%).

AsureQuality indicated that the analysis for samples GW33 (Motunui); GW5, GW46, GW47, Control02, and QAQC05 (Waitara Valley); GW28 (Omata Tank Farm 2); and GW9AA (Port Taranaki) could not achieve a laboratory LOR below 0.1 μ g/L owing to the high turbidity of the samples. In order to achieve a lower LOR of 0.01 μ g/L for these samples, they were reanalysed using a deviation to the accredited methodology at the request of AECOM.

While accreditation was not possible for all samples due to turbidity, the analytical methods were considered valid for the sample types. Overall, the QA/QC results are assessed to meet the data quality objectives for this investigation.

4.4 Comparison with Interim Guidelines

Groundwater samples have been compared against relevant interim guideline values recommended by the HEPA NEMP, comprising:

- Australian Department of Health 2017 health-based guidance values for drinking and recreation
 water, with the recreation value selected for offsite recreational users and the drinking water
 provided for reference only (groundwater is not used for drinking water at the Sites).
- Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC 2000), with 95% species protection level for PFOS and PFOA selected as appropriate for the Sites and the most-conservative 99% species protection level for PFOS and PFOA provided for reference only. These values were selected for aquatic/benthic organisms.

The NEMP notes that a degree of conservatism has been included in the guidelines values which means that exceeding these values does not constitute a risk if other pathways are controlled. This inbuilt conservatism is necessary when deriving screening values to be protective of communities where multiple exposure pathways may be present.

Guideline values are presented in **Table 3** for comparison purposes. The following points are noted:

- The concentration of PFOA detected in groundwater from GW33 (Motunui) exceeded the interim drinking water guideline value.
- The concentration of PFHxS/PFOS detected in groundwater from GW29 (Omata Tank Farm 2) exceeded the interim guideline values for drinking and recreation water, and the total PFOS concentration detected in groundwater from GW29 exceeded the interim guideline value for 95% freshwater and marine species protection.

All other analytical results are below the applicable interim guideline values for PFAS.

⁹ RPD = (primary result – duplicate result) x 100 / mean result

5.0 Discussion

Based on this initial screening, PFAS are present in groundwater at the Motunui, Waitara Valley, Omata Tank Farms, and Port Taranaki sites.

Though the concentration of PFOA at GW33 (Motunui) exceeded the interim drinking water guideline value for PFOA, this does not represent a risk to human health as the drinking water exposure pathway is considered to be incomplete. The site and surrounding area is served by the New Plymouth District Council municipal water supply, which is sourced from Lake Mangamahoe approximately 20 km southwest and upstream of the site.

PFAS are present in groundwater at the Omata Tank Farm 2 site at concentrations exceeding the interim ANZECC guideline value for 95% freshwater and marine species protection. The ANZECC guidelines values are intended to be applied in a receiving water body. Groundwater beneath the Omata Tank Farm 2 site is inferred to discharge to the Tasman Sea. The potential risk to recreational users of, and ecological receptors in, the Tasman Sea is considered minor/insignificant owing to the dilution factor of the Tasman Sea. Significant dilution occurs when groundwater discharges to coastal water.

Although PFAS were detected in groundwater, the concentrations in this initial screening indicate it is unlikely there is a significant risk to human health or ecological receptors.

6.0 Limitations

All information in this report is provided strictly in accordance with and subject to the following limitations and recommendations:

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Figures

PROJECT

TRC PFAS SAMPLING - Methanex Sites

CLIENT



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SPATIAL REFERENCE

Scale: 1:90,000 (A3 size) 920 460 0 920 1,840 2,760 3,680 m

Map features depicted in terms of NZTM 2000 projection

Data Sources: Cadastral Boundaries – LINZ NZ Cadastral Dataset 2018

PROJECT MANAGEMENT

Approved	VW	Date	25/10/2018
Checked	VW	Date	25/10/2018
Designed	SS	Date	25/10/2018
Drawn	SS	Date	25/10/2018

ISSUE/REVISION

Α	25/10/2018	DRAFT
Rev	Date	Description

KEY PLAN



PROJECT NUMBER

60584690

SHEET TITLE

SAMPLING LOCATIONS PLAN - METHANEX SITES

MAP NUMBER

PROJECT

TRC PFAS SAMPLING - Methanex Sites

CLIENT



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SPATIAL REFERENCE

Sca	ıle:		1:4,000) (A3 siz	e)	
40	20	0	40	80	120	160

Map features depicted in terms of NZTM 2000 projection

Data Sources: Cadastral Boundaries – LINZ NZ Cadastral Dataset 2018

PROJECT MANAGEMENT

Approved	VW	Date	25/10/2018
Checked	VW	Date	25/10/2018
Designed	SS	Date	25/10/2018
Drawn	SS	Date	25/10/2018

ISSUE/REVISION

Α	25/10/2018	DRAFT	
Rev	Date		Description

KEY PLAN

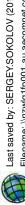


PROJECT NUMBER

60584690 SHEET TITLE

METHANEX MOTUNUI SITE PLAN

MAP NUMBER





PROJECT

TRC PFAS SAMPLING

- Methanex Sites

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SPATIAL REFERENCE

1:2,500 (A3 size) Scale: 1:2,500 (A3 size)
20 10 0 20 40 60 80

Data Sources: Cadastral Boundaries – LINZ NZ Cadastral Dataset 2018

PROJECT MANAGEMENT

Approved	VW	Date	25/10/2018
Checked	VW	Date	25/10/2018
Designed	SS	Date	25/10/2018
Drawn	SS	Date	25/10/2018

ISSUE/REVISION

Α	25/10/2018	DRAFT
Rev	Date	Description

KEY PLAN



PROJECT NUMBER

60584690

SHEET TITLE

METHANEX WAITARA VALLEY SITE PLAN

MAP NUMBER



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TRC PFAS SAMPLING

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SPATIAL REFERENCE

1:3,500 (A3 size)

Data Sources: Cadastral Boundaries – LINZ NZ Cadastral Dataset 2018

PROJECT MANAGEMENT

Approved	VW	Date	25/10/2018
Checked	VW	Date	25/10/2018
Designed	SS	Date	25/10/2018
Drawn	SS	Date	25/10/2018

ISSUE/REVISION

Α	25/10/2018	DRAFT	
Rev	Date		Description
		DRAFT	Description

KEY PLAN



PROJECT NUMBER

60584690

SHEET TITLE

METHANEX OMATA TANK FARMS SITE PLAN

MAP NUMBER



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SPATIAL REFERENCE

1:2,500 (A3 size) 20 10 0 20 40 60

Data Sources: Cadastral Boundaries – LINZ NZ Cadastral Dataset 2018

PROJECT MANAGEMENT

Approved	VW	Date	25/10/2018
Checked	VW	Date	25/10/2018
Designed	SS	Date	25/10/2018
Drawn	SS	Date	25/10/2018

ISSUE/REVISION

Α	25/10/2018	DRAFT
Rev	Date	Description

KEY PLAN



PROJECT NUMBER

60584690

SHEET TITLE

METHANEX PORT TARANAKI SITE PLAN

MAP NUMBER



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TRC PFAS SAMPLING

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SPATIAL REFERENCE

1:2,500 (A3 size)

Data Sources: Cadastral Boundaries – LINZ NZ Cadastral Dataset 2018

PROJECT MANAGEMENT

Approved	VW	Date	25/10/2018
Checked	VW	Date	25/10/2018
Designed	SS	Date	25/10/2018
Drawn	SS	Date	25/10/2018

ISSUE/REVISION

Α	25/10/2018	DRAFT	
Rev	Date	Descript	ion

KEY PLAN



PROJECT NUMBER

60584690 SHEET TITLE

METHANEX WAITARA VALLEY GROUNDWATER CONTOUR PLAN

MAP NUMBER

Tables



Table 2: Groundwater Gauging Data

Client Name: Taranaki Regional Council Project Name: TRC PFAS Sampling - Methanex Project No: 60584690

W-II ID	l sastian	Data	Total Well Depth	TOC Elevation	SWL	Depth to LNAPL	Groundwater Elevation
Well ID	Location	Date	(m bTOC)	(m RL) [#]	(m bTOC)	(m BTOC)	(m RL)
GW21		21-Aug-18	11.00	-	6.174	ND	-
GW22		21-Aug-18	21.10	-	7.190	ND	-
GW31	Motonui	21-Aug-18	12.00	-	5.345	ND	-
GW33	Motorial	21-Aug-18	6.50	-	3.457	ND	-
GW37		21-Aug-18	8.50	-	5.123	ND	-
Control01		21-Aug-18	21.70	-	6.806	ND	-
GW3		22-Aug-18	10.02	17.97	8.500	ND	9.47
GW5		22-Aug-18	3.38	8.65	1.447	ND	7.20
GW8A		22-Aug-18	5.40	17.47	3.064	ND	14.41
GW10	Waitara Valley	22-Aug-18	4.85	16.75	1.512	ND	15.24
GW46		22-Aug-18	7.00	8.83	4.314	ND	4.52
GW47		22-Aug-18	4.00	16.33	1.481	ND	14.85
Control02		22-Aug-18	4.54	17.77	0.999	ND	16.77
GWOM1	Omata Tank Farm 1	23-Aug-18	6.00	-	1.838	ND	-
GW28	Omata Tank Farm 2	23-Aug-18	12.00	-	5.638	ND	-
GW29	Omala rank Farm 2	23-Aug-18	15.00	-	9.018	ND	-
GW9AA	Port Taranaki	23-Aug-18	4.90	-	2.221	ND	-
GW9B	FUIT TATAMAKI	23-Aug-18	5.83	-	1.679	ND	-

Notes:

SWL = Standing water level (pre-purging)

RL = Reduced level

m = Metres

bTOC = Below top of casing

LNAPL = Light non-aqueous phase liquid

*m RL = provided by TRC. Surveyed by Taylor Patrick Surveors on 23/06/2014. Elevation are in Taranaki Vertical Datum 1970.

ND = Not detected

- = no data or not applicable



Table 3 - Groundwater Analytical Results

		Guidelir	ne Values							Sample Dat	ails and Analyt	iaal Baaulta					
Receptor	Hu	ıman	Ecol	ogical						Sample Dei	ans and Analyt	icai Results					
Source of Criteria	Australia	n DoH 2017	ANZ	ZECC	Sample Site	Motunui							Waitara Valley				
	Drinking	Recreational	I 99% species	95% species	Sample Location AECOM Sample Number	GW21 GW22 GW31 GW33* GW37 Control01 GAQC01					- GW3	W3 GW5* GW8A G		GW10			
Guideline	Water	Water	protection	protection	Laboratory Sample Reference	18-213689-1	18-213689-2	18-213689-3	18-213689-4	18-213689-5	18-213689-6	18-213620-1	18-213406-1	18-213406-2	18-213406-3	18-213406-4	
					Date Sampled	21-Aug-18	21-Aug-18	21-Aug-18	21-Aug-18	21-Aug-18	21-Aug-18	21-Aug-18	22-Aug-18	22-Aug-18	22-Aug-18	22-Aug-18	
Perfluoroalkylsulfonic acids					Perfluoroalkylsulfonic acids												
di-PFHxS	-	-	-	-	di-PFHxS	< 0.0010	< 0.0010	< 0.0010	< 0.010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.010	< 0.0010	< 0.0010	
mono-PFHxS	-	-	-	-	mono-PFHxS	< 0.0010	< 0.0010	< 0.0010	< 0.010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.010	< 0.0010	< 0.0010	
L-PFHxS	-	-	-	-	L-PFHxS	< 0.0010	< 0.0010	< 0.0010	< 0.010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.010	< 0.0010	< 0.0010	
Total PFHxS ¹	-	-	-	-	Total PFHxS ¹	< 0.0010	< 0.0010	< 0.0010	< 0.010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.010	< 0.0010	< 0.0010	
di-PFOS	-	-	-	-	di-PFOS	< 0.0010	< 0.0010	< 0.0010	< 0.010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.010	< 0.0010	< 0.0010	
mono-PFOS	_	_	_	-	mono-PFOS	< 0.0010	< 0.0010	< 0.0010	< 0.010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.010	< 0.0010	< 0.0010	
L-PFOS	_	_	_	_	L-PFOS	< 0.0010	< 0.0010	< 0.0010	< 0.010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.010	< 0.0010	< 0.0010	
Total PFOS ²	_	_	0.00023	0.13	Total PFOS ²	< 0.0010	< 0.0010	< 0.0010	< 0.010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.010	< 0.0010	< 0.0010	
100011103			0.00020	0.10	Total 1 1 03	V 0.0010	0.0010	V 0.0010	V 0.010	< 0.0010	< 0.0010	V 0.0010	0.0010	V 0.010	0.0010	0.0010	
PFHxS/PFOS ³	0.07	0.7	-	-	PFHxS/PFOS ³	< 0.0010	< 0.0010	< 0.0010	< 0.010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.010	< 0.0010	< 0.0010	
Perfluoroalkylcarboxylic acids					Perfluoroalkylcarboxylic acids												
PFOA	0.56	5.6	19	<u>220</u>	PFOA	0.017	0.0029	0.094	0.67	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.010	0.004	0.0081	
		Guidelir	ne Values														
										Sample Det	ails and Analyt	ical Results					
Receptor	Hu	ıman	Ecol	ogical													
Source of Criteria	Australia	n DoH 2017	ANZ	ZECC	Sample Location		Waitara	a Valley		Trip Blank	Omata Ta	ank Farm 2	Omata Tank Farm 1		Port Taranaki		
			1		Sample Location	GW46*	GW47*	Cont	trol02	QAQC04	GW28*	GW29 (Grab	GWOM1	GW9AA*	GV	V9B	
Guideline	Drinking	Recreational	I 99% species		AECOM Sample Number			Control02*	QAQC05*			Sample)			GW9B	QAQC08	
	Water	Water	protection	protection	Laboratory Sample Reference	18-213406-5	18-213406-6	18-213406-7	18-213620-5	18-213620-4	18-213132-4	18-213132-5	18-213132-1	18-213132-2	18-213132-3	18-213132-6	
Perfluoroalkylsulfonic acids	_		1		Date Sampled Perfluoroalkvlsulfonic acids	22-Aug-18	22-Aug-18	22-Aug-18	22-Aug-18	21-Aug-18	23-Aug-18	23-Aug-18	23-Aug-18	23-Aug-18	23-Aug-18	23-Aug-18	
di-PFHxS	_	_	l _	_	di-PFHxS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.0010	< 0.010	< 0.0010	< 0.0010	< 0.010	< 0.0010	< 0.0010	
mono-PFHxS	_	_	_	_	mono-PFHxS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.0010	< 0.010	0.05	< 0.0010	< 0.010	< 0.0010	< 0.0010	
L-PFHxS	-	-	-	-	L-PFHxS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.0010	0.015	0.27	< 0.0010	< 0.010	0.0015	0.0015	
Total PFHxS ¹	-	-	-	-	Total PFHxS ¹	< 0.010	< 0.010	< 0.010	< 0.010	< 0.0010	0.015	0.32	< 0.0010	< 0.010	0.0015	0.0015	
di-PFOS					di-PFOS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.0010	< 0.010	0.0065	< 0.0010	< 0.010	< 0.0010	< 0.0010	
mono-PFOS	1 [_	mono-PFOS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.0010	< 0.010	0.0003	< 0.0010	< 0.010	0.0010	0.0017	
L-PFOS	_	_	_	_	L-PFOS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.0010	0.022	0.31	< 0.0010	< 0.010	0.0048	0.0045	
Total PFOS ²	-	-	0.00023	0.13	Total PFOS ²	< 0.010	< 0.010	< 0.010	< 0.010	< 0.0010	0.022	0.42	< 0.0010	< 0.010	0.0066	0.0062	
PFHxS/PFOS ³	0.07	0.7	-	-	PFHxS/PFOS ³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.0010	0.037	0.74	< 0.0010	< 0.010	0.0081	0.0077	
Postluoso alkulos ika india asida			<u> </u>		Porfluorealladore sudia saida	1	-			-		1	1	1			
Perfluoroalkylcarboxylic acids PFOA	0.56	5.6	19	220	Perfluoroalkylcarboxylic acids PFOA	< 0.010	< 0.010	< 0.010	< 0.010	< 0.0010	0.018	0.044	0.0046	0.020	0.028	0.028	
··· • · ·	1 0.00	0.0			I	V 0.010	\ 0.0.0	1 0.010	1 3.0.0.0	V 0.0010	0.0.0	1	1 0.00.0	0.020	0.020	0.020	

All results and criteria are expressed in units of $\mu g/L$.

* Any tests for wells marked with this symbol are not accredited due to turbidity (AsureQuality)

PFHxS = perfluorohexane sulfonic acid

di-PFHxS = total perfluorodimethylbutane sulfonic acids

mono-PFHxS = total perfluoromethylpentane sulfonic acids

L-PFHxS = linear perfluorohexanesulfonic acid

PFOS = perfluorooctane sulfonic acid

di-PFOS = total perfluorodimethylhexane sulfonic acids

mono-PFOS = total perfluoromethylheptane sulfonic acids L-PFOS = linear perfluorooctanesulfonic acid

PFOA = perfluorooctanoic acid

- Total PFHxS = The numerical sum of di-PFHxS, mono-PFHxS, and L-PFHxS
 Total PFOS = The numerical sum of di-PFOS, mono-PFOS, and L-PFOS
- 3. PFHxS/PFOS = The numerical sum of Total PFHxS and Total PFOS

Sources of Guideline Values:

Australian DoH 2017: Health Based Guidance Values for PFAS for Use in Site Investigations in Australia. Australia Government Department of Health, 2017.

ANZECC: National Water Quality Management Strategy: Australian and New Zealand Guidelines for Fresh and Marine Water Quality, ANZECC, 2000. Technical draft default guideline values for PFOS and PFOA.

Bold - exceeds Australian DoH drinking water criteria

Italics - exceeds Australian DoH recreational water criteria

Underlined - Exceeds ANZECC 95% freshwater species protection criteria

⁻ no criteria

Table 4: Relative Percentage Difference

Client Name: Taranaki Regional Council Project Name: TRC PFAS Sampling - Methanex

Project No: 60584690

Analyte	Primary Sample	Duplicate	RPD%
Allalyte	GW9B	QAQC08	KFD/8
L-PFHxS	0.0015	0.0015	0%
Total PFHxS ¹	0.0015	0.0015	0%
mono-PFOS	0.0018	0.0017	6%
L-PFOS	0.0048	0.0045	6%
Total PFOS ²	0.0066	0.0062	6%
PFHxS/PFOS ³	0.0081	0.0077	5%
PFOA	0.028	0.028	0%

Notes:

All results are expressed in units of µg/L.

RPD: relative percentage difference

RPD calculated only for detected compounds.

PFHxS = perfluorohexane sulfonic acid

di-PFHxS = total perfluorodimethylbutane sulfonic acids

mono-PFHxS = total perfluoromethylpentane sulfonic acids

L-PFHxS = linear perfluorohexanesulfonic acid

PFOS = perfluorooctane sulfonic acid

di-PFOS = total perfluorodimethylhexane sulfonic acids

mono-PFOS = total perfluoromethylheptane sulfonic acids

L-PFOS = linear perfluorooctanesulfonic acid

PFOA = perfluorooctanoic acid

- 1. Total PFHxS = The numerical sum of di-PFHxS, mono-PFHxS, and L-PFHxS
- 2. Total PFOS = The numerical sum of di-PFOS, mono-PFOS, and L-PFOS
- 3. PFHxS/PFOS = The numerical sum of Total PFHxS and Total PFOS

Appendix A

Field Sampling Sheets

Confirm NAPL and groundwater levels by repeal measurements. All columns must be completed. If NAPL is not present in a well write ND' (Not Delected) in the relevant column. Fig. Date Time (24hr:mm) PID Reading (24hr:mm) Cosm) Cosm)	SEAN HUDGENS
Wall ID	BERCA JOYCE
Well ID	
Cathermony Cat	
11.0	Comments
	dition, odour, NAPL colour and viscosity)
10.43	
	nt hubidity
SW 46 22/8/18 09:35 0.1 - 4.314 7.0 - NVO ONTROLO	
13: 45	
13:45 0.3 - 8:500 - 10.02 - NVO 14:30 0.1 - 1:512 - 4:85 - NVO 15:20 0.0 - 1:447 - 3:38 - NVO 15:20 0.0 - 1:447 - 3:38 - NVO 16:00 0.0 - 3:064 - 5:40 - NVO 16:00 0.0 - 1:679 - 5:83 - NVO 10:30 6:3 - NVO 10:30 6:3 - NVO 10:30 6:3 - NVO 10:30 6:3 - NVO 11:35 0.0 - 1:838 - 6:0 - NVO 11:35 0.0 - 1:838 - 6:0 - NVO 12:10 0.0 - 5:638 - 12:0 - NVO 13:10 0.0 - 9:018 - 15:0 - NVO 13:10 0.0 - 9:018 - 15:00 - NVO 13:10 0.0 - 9:018 - 15:00 - NVO 13:10 0.0 - 9:018 - 15:00 - NVO 13:10 0.0 - 15:00 0.0 - 15:00 0.0	ightly cloudy
15:20	,
16:00 0.0 - 3.064 - - 5.40 - NVO 18	
SW9B 23/8//8 08:48 6.0 - 1.679 - - 5-83 - NVO	
10:30 6:3	
11-35	
W 28	our - marine water
SW29 V 13:10 0.0 — 9.018 — 15-0 — NVO Resurement Equipment Notes (Comments (PID) - photo ionisation detector, (ppm) - parts per million; (LNAPL) - light non-aqueous phase liquids; (DNAPL) - top of casing	
Resurrement Equipment Notes/Comments (PID) - photo ionisation detector, (ppm) - parts per million; (LNAPL) - light non-aqueous phase liquids; (DNAPL) - top of casing Calibration Report VE) - Calibration Report	
ske & Model: 1F 63 /P1D 2 Supplier: VAN WAZ1 (PID) - photo ionisation detector, (ppm) - parts per million; (LNAPL) - light non-aqueous phase liquids; (DNAPL) - top of casing	
Calibration Report VF - 7 See a Hercheed	
Calibration Report YES -> see a Hached Provided?	- dense light non-aqueous phase liquid; (mBTOC) - metre
oproval and Distribution	
23/8/18 5.69 13	/11/18

roject Name:	111	RI - PFA	Proj	ect Number:	11158	4690	PM Name	+		CEAN HIDIEM	Bore ID:		3/
Client:	78	IMET	The second second	ect Location:	10030	14/11	Fieldwor	**		SEAN HUDGENS	Sample Date:	21/	8/18
	Gene	ral Bore I	formation		Par	ameter Info.	OCTOPACH DESCRIPTION	tamination		Well Development or Well Sampling Event Sampling Method Hydrasleeve info.			
ate of GW Le	evel: 21/8/	118	Bore Radius (mm):	250		al No.: 055 5	The second second second	contaminated	Б	Low Flow Pump rate: 100m/	A Hydrasleeve		Monitoring
epth to GW ((m-pvc): 5 3 4	5	Screen Interval (m):		Chem Kit Mode		FI De		1	Intake depth:		- 75 (17) (17) (17) (17) (17) (17) (17) (17)	sequence followe
lore Depth (m	1-pvc): /2 ()		Casing Radius (mm): 50	Corrected Red	dox: Y / N			п	(Indynoe			(number in order
epth to Produ	uct (m-pvc):		Cover Type (gatic/s	tick up):	(The correction t	o apply is probe d	ependent) FI Oth		1	Peristaltic Pump Waterra	Hydrasleeve	Sample Committee	Gauging
roduct Thickr	ness (m):		Bore Locked (YES/N	VO)		thod: The Dov		or (Specify)		Other (specify)	Sampling Sta		Hydrasleeve in
			Key Type (if applical	ble):		□ Ret	rieved		-	Other (specify)	Camping Sta	it time.	Parameters
alculated bo	ore volume (L):		Includes/ excludes	bore annulus (c	circle)	# purge volur	nes removed:		Total	purged volume (L):			Parameters
	,						r Quality Param	eters	Total	parged volume (L).			
Time	Cumulative Vol. Removed (L)	SWL (m-pvc	Pump Rate	DO (ppm or mg/L)	E.C. (mS/cm or µS/cm)	рН	Redox (mV)	Temp %	С		Odour, Colour, T	urbidity	
11 54	0.5	5.44	3 100m1/m	716	177.4	6.81	-48.4	16.4	/	N707 -> 90	0	NVO -	Walte
11:59	1.0	5.46	D 100m1/w	7.941	1784	6.93	-44.8	16.6	4	7 13			
12:04	1.5	5.538	100m1/n	7.29	182.1	6.86	-44.2	16	_	- unsettled			HIE grey
11.09	2.0	5 58	3 35 11	6.91	184.0	6.82	-45.0	16:		7 77			colour.
	Ac	ceptable l	Parameter Range	± 10%	± 3%	± 0.05	± 10 mV	± 0.2 °C		140	0/ 1 1 1 1 1 1 1		
Analyt	tes Sampled for			Bottles Coll	lected			C Information		# 10	% turbidity (if using a		
eld Filtered:	Unfiltered:		x 40 mL Vial (HC	I) x 60 m	nL Ferrous	x 60 mL metals (SAN COL			Bore volume calculation	Field Comm		Anna Para de
		1	x 40 mL Vial (H ₂ S		mL Amber	x 250 mL Plastic			F		ori, bore condition, rai	e of tubing, redox o	orrection etc.
		1								* MRLOCK			
										TAIR BUBBLED	MOUND	TURKE	DITT
			A	pproval and Distrib	oution			I		MITER			
	fl		23/8/18		Vie	by W		13/11/1	8				
Fieldwo	ork Staff Signatu	re	Date		The state of the s	ame and Signa	ture	Date	\neg				
	515		13/11/18							0-1 ppm - 5		1110	Lale
	ct Manager Sign	-4	Date	_	bution: Project C				- 1	7 7 5	PO GE BEIN VO	1 GUNN	11016

Project Name:	TI	21-PF	Proje	ct Number:	1600	84690	PM Name			1111	Bore			6W	33
Client:	7/4	1/1/11		ct Location:		UNUI				STAN AUDGENS	Securities	ole Date:		21/8	
	Gene	ral Bore	Information	ct Location,		rameter Info.	Fieldwork	The state of the s		RITHT	Wel	Develop	ment or	Nell Sam	pling Event? (circle)
Date of GW Le		18/18	Bore Radius (mm):	250	The same of the sa	al No.: DSC 5		amination		Sampling Method	Hydrasic		Irasleev	The same of the sa	
Depth to GW (457	Screen Interval (m):		Chem Kit Mod	W-00 U		ontaminated	TILE.	Low Flow Pump rate: /Www./	1/1-	Hydraslee	ve Size:		Monitoring sequence followed
Bore Depth (m		5	Casing Radius (mm):			07(8)		icated		Intake depth:		Hydraslee	ve Type:		(number in order):
Depth to Produ	a All Paris Company of Company	ğ	Cover Type (gatic/stic			dox: Y / N	LISI DISI	osable	_	Bailer 📋 Hydraslee	eve	Sampling	Depth (m-p	ivc):	Gauging
Product Thickr			Bore Locked (YES/N				pendent) 🔳 Othe	er (specify)		Peristaltic Pump Waterra		Hydraslee	ve Install ti	me:	Hydrasleeve in
TOGGOT THICK	1033 (111).				arameter m	ethod: Dow	(4)(12)(5)(4)		171	Other (specify)		Sampling	Start Time		Hydrasleeve out
Calculated be	ero volumo (I)	_	Key Type (if applicabl			□ Retri							/		Parameters
Calculated bo	ore volume (L):		Includes/ excludes I	oore annulus (ci	rcle)	# purge volum	Contract the second second		Total	purged volume (L):					
	I was a superior					Water	Quality Parame	eters							
Time	Cumulative Vol. Removed (L)	SWL (m-pv	Pump Pate	DO (ppm or mg/L)	E.C. (mS/cm or µS/cm)	рН	Redox (mV)	Temp °C			Od	our, Colour	, Turbidity		
1:17	0.5	3 45	7 100m1/m	1.43	645	6.40	-23.9	20.2	2	2-9 NTU	N	0			
1 22	1.0	3.5	24 100m/n	1.00	627	6.29	-430	20 .	_	2.9 NTV	~	UV.			
1:27	1.5	3.54	12	1.03	6.15	6.23	-39 6	20.	_	多 3.1	14.4	0		- 1	
1.32	2.0	3.5	60 4	0.99	6.12	6.22	-38.6	20.		30					
					0	0.22	-38.0	20	3	- 0	_				
									_						
					185										
_0															
									\rightarrow		_				
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									\neg		_				
	Ac	ceptable	Parameter Range:	± 10%	± 3%	± 0.05	± 10 mV	± 0.2 °C		+100	0/ trade	dia . Of color			
Analyt	es Sampled fo	r:		Bottles Colle	cted			Informatio	-	110		dity (if using		neter)	
leld Filtered:	Unfiltered:		x 40 mL Vial (HCI)	v 60 ml	Ferrous	x 60 mL metals (H		- Intermedia			_	ield Con	or managed a		
			x 40 mL Vial (H ₂ SC	200	L Amber	x 250 mL Plastic	NO ₃)		-	Bore volume calculation	on, bor	e condition,	fate of tubin	g, redox co	rrection etc.
				A7 X 100 II	L Alliber	x 250 mL Plastic	-		- 1						
							_		- 1						
			App	proval and Distribu	ition	74355	-			Α.					
	Bon		23/8/18			harra-				PID (PPM)					
Fieldwo	ork Staff Signatu	re		-		ame and Signatu	ire .	13/11/1 Date	.8	LIN (II)					
	5/5		12/11/10			and orginate		Date	- [01 86 -	6	7 1	NNO	nou	_
Proie	ct Manager Sign	ature	13/11/18 Date	Dist	elen D				- [0.0	0	2 0			
			Date	Distribi	ution: Project C	entral File									

-		01 0	5.00								Bore	ID;	CON	TROL BI
Project Name:	TI	RL-P	201 19 A . C	ect Number:	605	84690	PM Nam	9:	101	SEAN HUDGENS	Sami	ole Date:		18/18
Client:	100	16/11	The state of the s	ect Location:	M07	UMU	Fieldwor	k Staff:		RJ + L7	Wel	Development or \		pling Event? (circle)
Date of GW Le			Information	1	The second second second	ameter Info.		tamination	_	Sampling Method			Irasleeve	
Depth to GW (21/	8/18	Bore Radius (mm):	250		No.: 0515		contaminated	171	Low Flow Pump rate: /DOM/	In	Hydrasleeve Size:		Monitoring
Bore Depth (m-		7	Screen Interval (m):	-	Chem Kit Mode			dicated		Intake depth:		Hydrasleeve Type:		(number in order):
	- Bar 1		Casing Radius (mm)			dox: Y / N	UR	posable	П	Bailer FI Hydraslee				
Depth to Produ	ict (III-pvc).		Cover Type (gatic/sti				ependent) FI Oti	ner (specify)	FL	Peristaltic Pump Waterra		Hydrasleeve Install ti	ne:	Hydrasleeve in
Product Thickn	ess (m):		Bore Locked (YES/N		Parameter me	thod: Dow	Miles Sept.		E	Other (specify)		Sampling Start Time:		Hydrasleeve out
Calandatadha			Key Type (if applicab			□ Retr								Parameters
Calculated bo	re volume (L):	_	Includes/ excludes	bore annulus (d	circle)	# purge volum			Tot	al purged volume (L):				
	land the same of the same of				E.C.	Water	Quality Paran	eters						
Time	Removed (L)	SWL (m-pv	Pump Pata	(ppm or mg/L)	(mS/cm or µS/cm)	pH	Redox (mV)	Temp ℃	С		Od	our, Colour, Turbidity		
10:43	0.5	6 81	06 100m//m	6.74	2141 6	6.62	100.7	15.4	1	NO ODOUR/SLICE	1 .	-10/00/11	2	LINTU
10:48	1.0	68	14 " 11	6.51	212.4	6.59	78.3	15 4	/	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		0.00,200		1.1 NTU
10:53	1.5	6.88	5	6.49	7120	6 58	67.3	15.3						
10:58	2.0	6-82	10	6:41	211 8	6 58	67.8	15.	-					2.0 NTU
				0 11	2110	0.58	D 110	(0.0	٥				2	2-0
									_		_			
											_			
									_					
			=											
A CONTRACTOR OF THE PARTY OF TH			Parameter Range:	± 10%	± 3%	± 0.05	± 10 mV	± 0.2 °C		± 10	% turb	dity (if using a turbidity r	neter)	
	es Sampled fo	(d)		Bottles Coll	lected		QA/Q	C Informatio	on			ield Commets		
Field Filtered:	Unfiltered:		x 40 mL Vial (HCI)		nL Ferrous	x 60 mL metals (H	NO3) QAQ	CØI = DU	P	Bore volume calculation	on, bor	e condition, fate of tubin	g, redox co	rrection etc.
			x 40 mL Vial (H ₂ S0	O ₄) x 100	mL Amber	x 250 mL Plastic	GAG	C 02 = FIE	10					
										ž.				
							Q AQ	-03=RIN	IP					
	P)		Ар	proval and Distrib	oution									
Fieldwo	rk Staff Signatu	re	23/8/18 Date	-		6-W		13/11/1	8					
	S-65	_			Checker Na	me and Signati	ıre	Date			- View	5,140-1104-10		
		ature	13/11/18	1.295000	manga Basa ara					P10= 0.3 -7 sa	dov	vnhole		.,
Project Manager Signature Date					bution: Project Ce	entral File				PID= 0.3 -> sa	me	as back	91041	70

Q4AN(EV)-405-FM1

The state of the s											Bore ID: 60	121
Project Name:			3 SAMPLING	100000000000000000000000000000000000000	To the state of th		4690/2.	2 PM Nam	e:	SEAN MUDGENS	Sample Date: 2//	8/18
Client:		RL		Project l	Location:	MOTO		Fleidwo		RI +LT	Well Development or Well Sar	mpling Event? (circle)
Date of GW Le		Name and Address of the Owner, where	Information	_		The second second	meter Info.		ntamination	Sampling Method	Hydrasleev	
		2/18	Bore Radius (m			Chem Kit Seria		II De	econtaminated	Low Flow Pump rate: OU mil	Hydrasleeve Size:	Monitoring sequence followed
Depth to GW (r		74	Screen Interval			Chem Kit Mode		De De	edicated	Intake depth:	Hydrasleeve Type:	(number in order):
Bore Depth (m-		0	Casing Radius				ox: Y / N		sposable	□ Bailer □ Hydraslee	eve Sampling Depth (m-pvc):	Gauging
Depth to Produ			Cover Type (ga			(The correction to	apply is probe dep	pendent) FI Or	her (specify)	Peristaltic Pump Waterra	Hydrasleeve Install time:	Hydrasleeve in
Product Thickn	ess (m):		Bore Locked (Y			Parameter met	thod: 🗖 Down	WCESS		Other (specify)	Sampling Start Time:	Hydrasleeve out
			Key Type (if app	plicable):			☐ Retrie					Parameters
Calculated bo	re volume (L):		Includes/ exclu	udes bo	re annulus (c	ircle)	# purge volume	THE RESERVE AND ADDRESS OF THE PERSON NAMED IN		Total purged volume (L):		
		_					Water	Quality Parar	neters			
Time	Cumulative Vol Removed (L)		Pump R	Rate (F	DO opm or mg/L)	E.C. (mS/cm or µS/cm)	рН	Redox (mV)	Temp ℃		Odour, Colour, Turbidity	
14:15	05	6.17	4 100m	(/m	7.82	1292	617	21.0	16.1	60 NTU	-> NVO	1.*
14:20	1.0	6 22	3 100m	1/0	7.80	127 8	6 18	22.7	16.1	5.4	1	
14:25	1.5	1/2			7-79	127.7	6.18	242	16.1	4.8	1 2	
		T *							10 1	7 0	V	
				_								
								1				
				$\overline{}$					_			
				-	-2				-			
F)		-		_								
	A	cceptable	Parameter Ra	ange:	± 10%	± 3%	± 0.05	± 10 mV	± 0.2 °C	+10	0% turbidity (if using a turbidity meter)	
Analyt	es Sampled f				Bottles Coll			100 100 100 100 100	C Information		Field Commets	
Field Filtered:	Unfiltered		x 40 mL Via	I (HCI)	T V 60 m	nL Ferrous	x 60 mL metals (H				THE RESIDENCE	
500,00000000000000000000000000000000000			x 40 mL Via			mL Amber		NO ₃)			ion, bore condition, fate of tubing, redox	
			X 40 IIIE VIA	1 (112004)	X 100	mit Amber	x 250 mL Plastic	-		00 ambiens	+ 0 1ppm de	wnhole
					++-			_		1		
				Appro	oval and Distrib	oution				-		
	Bon		22/0/	-		0.77	£ 100.00					
Fieldwo	rk Staff Signal	ture	23/8/ Date	18	5		me and Signatu	ıre	13/11/1 Date	8		, ,
	56		12/11	/10				V/-35-1	Dute			
	et Manager Sig	inature	13/11/ Date		Dietell	hutlanı Desia - C	antial File					
, , , , ,	zi manager olg	muture	Date		Distrit	bution: Project Co	entral File					

Page 1 of 1

Project Name:	7	RL-F	EAT Proje	ct Number:	1/00	21.180	lau				Bore		6W3	
Client:			Pet LA A LONG CONTRACTOR		0058	4690	150095	Name:	5	EAN MUDSENS		ple Date:	21/8	
Oilent.			Information	ct Location:	Par	ameter Info.	11200	dwork Staff:	1	1+17	We			pling Event? (circle)
Date of GW Le		118	Bore Radius (mm):	250		al No.: //55 5		Decontaminated	ELTO	Sampling Method w Flow Pump rate: 100 m.	1/-	Hydrasleeve Size:	drasleeve	info. Monitoring
Depth to GW (r	m-pvc): 5 0	194	Screen Interval (m):	_	Chem Kit Mode			Dedicated	1- 60	Maria La Valley Company of the Compa	1/100			sequence followed
Bore Depth (m-	-pvc): 8	.5	Casing Radius (mm)	50		dox: Y / N		Disposable	ГІ Ва	Intake depth:	101/0	Hydrasleeve Type: Sampling Depth (m-	nun): /	(number in order):
Depth to Produ	ct (m-pvc):		Cover Type (gatic/sti	ck up):		o apply is probe dep	pendent) FI	Other (specify)		ristaltic Pump Waterra	eve	Hydrasleeve InstalLti		Gauging Hydrasleeve in
Product Thickne	ess (m):		Bore Locked (YES/N	0):		thod: FI Down		Other (opedity)		ner (specify)		Sampling Start Time	(Ca.65)	Hydrasleeve out
		-	Key Type (if applicab	e): 7R1		□ Retrie	eved		- 08	iei (apecily)		Company Glart Time	•	Parameters
Calculated bo	re volume (L):		Includes/ excludes	bore annulus (d	circle)	# purge volume	es remove	d:	Total pu	irged volume (L):				Farameters
						Water	Quality Pa	arameters			-		_	
Time	Cumulative Vol. Removed (L)	SWL (m-pv	Pump Pate	DO (ppm or mg/L)	E.C. (mS/cm or µS/cm)	рН	Redox (mV)		:		00	dour, Colour, Turbidity		
15:00	0.5	5 12	23 100m1/n	8.00	207.9	6.70	29.8	18:7	2	1:6 NTU	-2	NVO.		
15:05	1.0	5.12	4 1	7.94	210.0	6.15	30 -	- 1		1.4 NTU	-	35 .1		
15:10	1.5			7.8/	210.2	6.07	3/.			1.2		5 FIDW	1011	un dies d
15.20	2.0	V		7.81	2093	6.03	33.			1.4		gun -	- Ar em	in direct
			- '	7 0	2013	0 0 0	23.	0 110		1.4				
					_				_		_		_ *	
	-													
									-					
									\rightarrow		-			
	Ac	ceptable	Parameter Range:	± 10%	± 3%	± 0.05	± 10 m\	/ ± 0.2 °C		+1	0% turi	pidity (if using a turbidity	enertes)	
Analyte	es Sampled fo	ori:		Bottles Coll	lected		C	A/QC Informatio	n.		_	Field Commets	meter /	
Field Filtered:	Unfiltered:		x 40 mL Vial (HCI)	x 60 n	nL Ferrous	x 60 mL metals (HI	NO ₃)			Bore volume calculat	_	re condition, fate of tubin	a raday aa	modern of
			x 40 mL Vial (H ₂ SC	O ₄) x 100	mL Amber	x 250 mL Plastic					7.1		ig, redux coi	recubit etc.
										00 ppm	64	inground.		
										6	100	unhole.		(90
	e e		Ар	proval and Distrib	oution									
Field	de Chatter Charles		23/8/18			kg W		13/11/1	.8					
	rk Staff Signatu	ıre	Date		Checker Na	ime and Signatu	re	Date	\neg					
V2			13/11/18											
Projec	t Manager Sigr	nature	Date	Distril	bution: Project Ce	entral File								

ANZ

FQM - Groundwater Sampling and Purging Record

		0/- 25	4							Bor	re ID:	SW 22
Project Name:	11	RC- PF	AS SAMPLA PEOJE			584690	12.2 PM Na	me:		SEAN HUDGENS San		21/8/18
Client:		TRL	HARRING	ect Location:		UNVI	Fieldw	ork Staff:		RJ + LANRA TIART WE	ell Development or Wel	Sampling Event? (circle)
Date of GW L			Information			ameter Info.	THE RESERVE AND ADDRESS OF TAXABLE PARTY.	ontamination		Sampling Method		leeve info.
		19,118	Bore Radius (mm):			al No.: D55	TI I	Decontaminated	п	Low Flow Pump rate: 100m1/	Hydrasleeve Size:	Monitoring
Depth to GW		-190	Screen Interval (m):		Chem Kit Mod	el:	TI (Dedicated		Intake depth:	Hydrasleeve Type:	sequence followed (number in order):
Bore Depth (m		1.2	Casing Radius (mm)			dox: Y / N		Disposable	П	Bailer Hydrasleeve	Sampling Depth (m-pvc):	
Depth to Prod			Cover Type (gatic/sti		The correction	to apply is probe de	pendent) FI (Other (specify)	FL	Peristaltic Pump Waterra	Hydrasleeve Install time:	Hydrasleeve in
Product Thick	ness (m):		Bore Locked (YES/N	0):	Parameter me	ethod: Dow	nhole		171	Other (specify)	Sampling Start Time:	Hydrasleeve out
			Key Type (if applicab	le):		□ Retr	ieved				/	Parameters
Calculated bo	ore volume (L):		Includes/ excludes	bore annulus (cir	rcle)	# purge volum	es removed:		Tot	al purged volume (L):	/	- I summitted
		_				Water	Quality Para					
Time	Cumulative Vol Removed (L)		Dump Data	(ppm or mg/L)	E.C. (mS/cm or µS/cm)	рН	Redox (mV)	Temp °C		c	dour, Colour, Turbidity	
3:38	0.5	7.19	0 100m1/m	7.13	150.3	6.87	63.5	15-8	2	NVO ->	14NTU	
3:43	1.0	7.19	0 1	687	151.9	6.58	82.7	15-		14 N70	7770	NVO
3:48	1.5	7.19	0	6.61	152.0	6.53	88.8	15.6		1.3 NTU		N/0
3:53	2.0	7 19	D V	6.48	1521	6.50	95.1	15.5				
		17.11		19.10	1.1	6 10	12.1	12.3		1.4		4
		-										
									-			
								-				
		-										
			Parameter Range:	± 10%	± 3%	± 0.05	± 10 mV	± 0.2 °C		± 10% tu	rbidity (if using a turbidity mete	r)
Analy	tes Sampled for	or:		Bottles Colle	cted		QA	QC Informatio	n		Field Commets	
Field Filtered:	Unfiltered:		x 40 mL Vial (HCI)	x 60 mL	. Ferrous	x 60 mL metals (H	NO ₃)			Bore volume calculation, b	ore condition, fate of tubing, re	dox correction etc.
			x 40 mL Vial (H ₂ SC	O ₄) x 100 m	L Amber	x 250 mL Plastic						
										0.0ppm d	ownhore 1	pacagionna
	P		Ар	proval and Distribu	ition							
Fieldwa	ork Staff Signat	TITO.	23/8/18 Date		Va	dy W		_13/11/1	8			
Tolaw		ure J	,		Checker re	ame and Signati	ıre	Date				
De-1	5/5		13/11/18									
Proje	ct Manager Sig	nature	Date	Distribu	ution: Project C	entral File						

											Bore	ID:	6 h	146
Project Name:	71	RC/PFI	90	Project Number:		84690	PM N	ame:		SEAN MUDGENS	Sam	ole Date:		8118
Client:	7	RUM	A CONTRACTOR OF THE PARTY OF TH	Project Location:	WATT	MA VAZ	(f) Field	work Staff:		RJ+LT	Wel	Development or		pling Event? (circle)
			Information			ameter Info.	The second second	contamination		Sampling Method		Hyd	drasleeve	The state of the s
Date of GW Le		18/18	Bore Radius (mi			al No.: 055	S FI	Decontaminated	1UV	Low Flow Pump rate: 100 M	Um	Hydrasleeve Size:		Monitoring sequence followed
Depth to GW (TO STANKE TO STA	3/4	Screen Interval		Chem Kit Mode	el:	EI	Dedicated		Intake depth:		Hydrasleeve Type:		(number in order):
Bore Depth (m		7-0	Casing Radius (Corrected Red			Disposable	FI	Bailer Hydraslee	eve	Sampling Depth (m-p	ovc):	Gauging
Depth to Produ		_	Cover Type (gal	Till 3		o apply is probe de		Other (specify)	TI	Peristaltic Pump Waterra		Hydrasleeve Install ti	me:	Hydrasleeve in
Product Thickr	ness (m):	_	Bore Locked (*A		Parameter me	thod: Dow			EL	Other (specify)		Sampling Start Time		Hydrasleeve out
			Key Type (if app	licable): TR/		F1 Retr	rieved							Parameters
Calculated bo	ore volume (L):		Includes/ exclu	des bore annulus (circle)	# purge volun			Total	l purged volume (L):				
						Wate	r Quality Par	rameters						
Time	Cumulative Vol Removed (L)	. SWL (m-pv		te DO (ppm or mg/L)	E.C. (mS/cm or μS/cm)	рН	Redox (mV)	Temp ℃	С		00	our, Colour, Turbidity		
9:35	0.5	4 30	44 100m	1/11 2.39	305.4	6.75	9.4	15.7		40 NTU		NVO		
9:40	1.0	4.34	4 100m	1/00 2.13	306.0	6.72	12.0	15.8		3.2 NTV		1		
9:45	1.5	21 34	4 100ml	1-98	305.6	6.71	-24.1	1 15.3	7	1.8 NTU		1		
9:50	2.0	434	4 11	1.95	305 6	6.70	-26.2	15.6		18 NTO		1		
												4		
		2												
									\neg					
Analy	tes Sampled f	OR OTHER DESIGNATION OF THE PERSON NAMED IN COLUMN 1	Parameter Ra	Bottles Co	±3%	± 0.05	± 10 mV	2,750,000,000,000		± 10		oidity (if using a turbidity	meter)	
Field Filtered:	Unfiltered	_	x 40 mL Vial		mL Ferrous	x 60 mL metals (I		A/QC Information	on	Post de la Colonia		Field Commets		
(), (0007); () A (000); (-004); ()			x 40 mL Vial	Action to the second	0 mL Amber	x 250 mL Plastic	HINO3)		ŀ	Bore volume calculat	tion, bo	re condition, fate of tubi	ng, redox co	rrection etc.
			A 40 ML VIII	(1,2004)	O INL AMOER	x 250 mL Plastic	_			O Ippm downhole.	6	67 0.0pg	pm	
										downhole.				
	P			Approval and Distr	ribution			-						
Fieldw	ork Staff Signat	ture	23/8/ Date	18	Checker N	ame and Signal	ture		18					
			13/11,	18		and orginal		Date						
Proje	ect Manager Sig	ınature	Date		ribution: Project C	Central File								

Verilla Abdulus			-								Bore ID:	1,000	COM	17ROL \$2
roject Name:		C- PF		Project Number:		84690	PM Name	et		SEAN MUDGENS	Sample D	ate:	22/	08/18
lient:				Project Location:		TARA VAC	The second second			RJ + LT	Well De	A STATE OF THE PARTY OF THE PAR	the state of the s	pling Event? (circ
	- Contraction	And in column 2 is not a second	Information			ameter Info.		itamination		Sampling Method			drasleeve	
ate of GW Le			Bore Radius (mr		Chem Kit Seria			contaminated	FI	Low Flow Pump rate:	Hyd	Irasleeve Size:		Monitoring sequence follows
epth to GW (Committee of the commit		Screen Interval (190801	Chem Kit Mode		I'I De	dicated	_	Intake depth:	Hyd	Irasleeve Type:		(number in order
ore Depth (m	1-pvc): 4	54	Casing Radius (Corrected Rec	114.150 NO MO 201	Dis	posable		Bailer FI Hydraslee	eve San	npling Depth (m-	pvc):	Gauging
epth to Produ	uct (m-pvc):		Cover Type (gat		(The correction to	o apply is probe de	ependent) ITI Ott	ner (specify)	FT	Peristaltic Pump Waterra	Hyd	Hydrasleeve Install time:		Hydrasleeve in
roduct Thickn	ness (m):	-	Bore Locked (YE	ES/NO): hinge	Parameter me	thod: I Dow	nhole		FF	Other (specify)	San	npling Start Time	:	Hydrasleeve o
			Key Type (if app	licable):		☐ Retr	ieved							Parameters
alculated bo	ore volume (L):		Includes/ exclu	des bore annulus	(circle)	# purge volum			Tota	al purged volume (L):				
						Water	Quality Paran	neters						
Time	Removed (L)	SWL (m-pv	Pumn Ra	ote DO (ppm or mg/L	E.C. (mS/cm or μS/cm)	рН	Redox (mV)	Temp °C			Odour,	Colour, Turbidity		
10:45	0.5	1.00	2 100mi	m 2.74	240.0	6.05	54.7	13.8		24.7 NTU		NVO	7	
10:50	1.0	1.00	2 100ml	m 3.23	240.5	5.87	54.7	13.8		18.3		1		
10:55	1.5	35	100m1/	m 3.25	239.0		54.2		5	17.7			10	
11:00	2.0		100ml		237.3	5.89	54.6	14.0	i.	16.7				
	A	cceptable	e Parameter Ra	nge: ± 10%	± 3%	± 0,05	± 10 mV	± 0.2 °C		+1	0% turbidity	(if using a turbidity	(meter)	
Analy	tes Sampled fo	or:		Bottles C	ollected	lle e	QA/C	C Informati	on			d Commets		
ield Filtered:	Unfiltered		x 40 mL Vial	(HCI) x 6	mL Ferrous	x 60 mL metals (HNO ₃)	QC 05-	- d	Bore volume calcula	tion, bore co	ondition, fate of tub	ing, redox o	orrection etc.
			x 40 mL Vial		00 mL Amber	x 250 mL Plastic	04	QC \$6 0	- #	VELD				manus conditribition pack distrib
							DAG	2C /7=1	RIN	VIATE				
				Approval and Dis	tribution					00000	60	chgron.	nd +	downhol
	fl-m-		23/8/	18	1/4	da W		13/11/1	8	-> burrea had to well top.		0.00		
Fieldw	ork Staff Signat	ure	Date			ame and Signa	ture	Date		-> builea	ur	nder i	nua	19191
	56		13/11/	18						bad to	di	a put	to	And
Design	ect Manager Sig	naturo	Date		tribution: Project 0					naa ja	21/10	7		1/01 (3-50)

Designat Nove	7	01.0				-1					Bore	ID:	GW	47
Project Name:				ect Number:		841690	15504	M Name:		SEAN HUDGENS	Sam	ole Date:	221	08118
Client:				ect Location:		ARA VAL	CEY FI	eldwork Staff:		RJ + LT	Wel	Development or \	Well Sam	pling Event? (circle)
Date of GW Le	- Control of the last of the l	Maria Constitution in	Information			ameter Info.		Decontamination		Sampling Method			Irasleeve	
Committee of the Commit	1010	1	Bore Radius (mm):	200		1 No.: 055 5		Decontaminated	FJ	Low Flow Pump rate: 100m	1/m	Hydrasleeve Size:		Monitoring
Depth to GW (18/	Screen Interval (m):		Chem Kit Mode	20	F	Dedicated		Intake depth:		Hydrasleeve Type:		sequence followed (number in order):
Bore Depth (m		0	Casing Radius (mm		Corrected Rec	PRESERVE AT 11	7	Disposable	FI	Bailer Hydraslee	eve	Sampling Depth (m-p	ovc):	Gauging
Depth to Produ			Cover Type (gatic/s	100000000000000000000000000000000000000	(The correction to	o apply is probe d	ependent) F	Other (specify)	FJ/	Peristaltic Pump Waterra		Hydrasleeve Install ti	me:	Hydrasleeve in
Product Thickn	ess (m):		Bore Locked (YES/I	1	Parameter me	thod: 🖼 Dov	vnhole		FE	Other (specify)		Sampling Start Time		Hydrasleeve out
			Key Type (if applica	ole): TR/		FI Ret	rieved					/		Parameters
Calculated bo	re volume (L):		Includes/ excludes	bore annulus (c	ircle)	# purge volun	mes remov	red:	Total	l purged volume (L):				
				T		Wate	r Quality F	Parameters						
Time	Cumulative Vol. Removed (L)	SWL (m-pv	Pump Reta	DO (ppm or mg/L)	E.C. (mS/cm or µS/cm)	рН	Redd (mV				Od	our, Colour, Turbidity		
11:30	0.5	1.4	84 100m1/m	3.31	206.5	6.17	49	2 /4.	2	97.4 NTU	0/1	is much u.	clau	die -some
11:35	1.6	1.48	4 1	2-33	207.7	6.07	51	4 14.4		108 5 MTV	7. 1/ 4	o many	-1,10	sings.
11:40	1.5	1.48	4	2.07	207.3	6 06	53.3	3 14.3		62.2 NTU				
11:45	2.0	1-48	34 6	2.12	207-4	6.06	53 8			40-9 NTU	_			
					2.9.1	000	220	3 / 1 /	-	10.4 1010	_			
							-		_					
	*										_			
								_	\dashv		_		_	
			_						\dashv					
			_											
									\rightarrow					
الما المساهر	Ac	ceptable	Parameter Range	± 10%	± 3%	± 0.05	± 10 n	nV ± 0.2 °C		*40	10/ 1	tale of an array are		
Analyt	es Sampled for	r:		Bottles Coll		10010000000	_	QA/QC Information		110	-	idity (if using a turbidity	meter)	
Field Filtered:	Unfiltered:		x 40 mL Vial (HC) × 60 m	L Ferrous	x 60 mL metals (I	_	and mornation	-	Para anti- and a facility	_	Field Commets		
			x 40 mL Vial (H ₂ S		mL Amber	x 250 mL Plastic	111(03)		-			e condition, fate of tubin		
			13.00 (1.20	X 100	III. Alliber	x 250 mL Plastic				0.0 ppm do	wr	hole /bo	achg	round.
									- 1	11		2	U	
			A	pproval and Distrib	ution				_					
	flyn-		23/8/18			he W		10/11/1						
Fieldwo	rk Staff Signatu	re	Date	_		me and Signat	ture	13/11/1 Date	8					
Chica-1000000	56		13/11/18					Date						
Proied	t Manager Sign	ature	Date	- Diesell	outlon: Project Co	entral Eile			- 1					
	and a sign		Date	Distrit	rudon: Project Co	entral File								

			F 40									Bore	ID:	GW	3
Project Name:		TRL-PI			ct Numbe			84690	PM Nar	ne;	SEAN MUDGENS	Sam	ple Date:	22/	5/18
Client:			ETMANEX	Proje	ct Location	on:		ned varie	Fieldw	ork Staff:	RJ + L7	Wel	I Development o		oling Event? (circle
Data of CIALL		A STATE OF THE PERSON NAMED IN	nformation		-	7.		ameter Info.		ntamination				lydrasleeve	info.
Date of GW L			Bore Radius		25			al No.: 055 5		econtaminated	FI Cow Flow Pump rate: 100	milm	Hydrasleeve Size:		Monitoring sequence followed
Depth to GW		500	Screen Interv		_		Chem Kit Mod	200	II D	edicated	Intake depth:		Hydrasleeve Type		(number in order):
Bore Depth (n		0.02	Casing Radiu	Control of the Control			Action to the control of the control	dox: Y / N		isposable	Γ∎ Bailer Γ∎ Hydra	sleeve	Sampling Depth (n	n-pvc):	Gauging
Depth to Prod		_	Cover Type		21. V. S.			to apply is probe de		ther (specify)	Peristaltic Pump Water	та	Hydrasleeve Instal	time:	Hydrasleeve in
Product Thick	ness (m):		Bore Locked	* 1110 000 000	200		Parameter me	ethod: N Down	With Section 1		Other (specify)		Sampling Start Tin	ne:	Hydrasleeve out
			Key Type (if a	pplicabl	e):			☐ Retri	eved						Parameters
Calculated b	ore volume (L)):	Includes/ ex	cludes	bore ann	nulus (c	ircle)	# purge volum			Total purged volume (L):				
		_						Water	Quality Para	meters					
Time	Removed (L)		Pumn	Rate	(ppm or		E.C. (mS/cm or µS/cm)	pH	Redox (mV)	Temp °C	c	Od	our, Colour, Turbidi	ty	
1:45	0.5	8 5	00 100	n1/m	6	91	495.2	6.09	77.6	17.1	6-10.0 NT	-11	Fluiba	ahna	rapidly
1:50	1.0	8.54	per .	n 1/m		75	496.7	6 08	64.8	17.2	2.4 NTU	U	((N C) N	werry.	rapining
1:55	1-5	8.54				98	4997	6.09	59.9		2.9 10 10				
0.60	1	0	10 10011	1/m	0	0.0	17717	5.07	3 / . /	17.1	20				
	A	Acceptable	Parameter F	Range:	± 10)%	± 3%	± 0.05	± 10 mV	± 0.2 °C		+ 10% turk	oidity (if using a turbid	ity meter)	
Analy	rtes Sampled f	for:			Bottl	es Coll	lected		QA/	QC Information			Field Commets	,,,,,	
Field Filtered:	Unfiltered	d:	x 40 mL V	ial (HCI)		x 60 m	nL Ferrous	x 60 mL metals (H	NO ₃)		Bore volume calc	and the second s	re condition, fate of tu	bing, redox co	rection etc.
			x 40 mL V	ial (H ₂ SC	04)	x 100	mL Amber	x 250 mL Plastic			P10 = 0.3				
								Accessed to the second of the			r10 = 0.3	50	+ DUNNA	066	
											- 1 / WATE	2.94			
				Ap	proval an	d Distrik	oution				Deviodical boiler	IF	oper	and	
	fl-n		23/8	3/18			Ž.	side W		13/11/2	18 periodica	114	above	au	dismai
Fieldw	ork Staff Signa	ature	Da	te				ame and Signatu	re	Date	harla				Large.
	5/5		13/1	1/18							voller.				
	ect Manager Sig		Da				bution: Project C								

Q4AN(EV)-405-FM1

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FQM - Groundwater Sampling and Purging Record

Bore ID: Project Name: TRL PFAJ 60584690 Project Number: PM Name JEAN HUDGENS Sample Date: 22/8/18 TRU | MEIMANEX Project Location: Client: WATTARA VALLEY Fieldwork Staff: RI FLT Well Development or Well Sampling Event? (circle) General Bore Information Sampling Method Hydrasleeve info 22/8//8 Bore Radius (mm): Date of GW Level: Chem Kit Serial No.: 7555 Decontaminated Low Flow Pump rate: 100 M My Hydrasleeve Size: Monitoring sequence followed Screen Interval (m): Depth to GW (m-pvc) Dedicated Intake depth: Hydrasleeve Type: (number in order): Bore Depth (m-pvc): Casing Radius (mm): ☐ Disposable Corrected Redox: Y / N □ Hydrasleeve Sampling Depth (m-pvc): Gauging Cover Type (gatic/stick up): // / (The correction to apply is probe dependent) | Other (specify) Depth to Product (m-pvc) Peristaltic Pump Waterra Hydrasleeve InstalLtime Hydrasleeve in Product Thickness (m) Bore Locked (YES/NO): Parameter method: I Downhole Sampling Start Time: Other (specify) Hydrasleeve out ☐ Retrieved Key Type (if applicable): Parameters Calculated bore volume (L): Includes/ excludes bore annulus (circle) # purge volumes removed: Total purged volume (L): Water Quality Parameters Cumulative Vol. SWL Redox Pump Rate (mS/cm or Temp °C Odour, Colour, Turbidity Removed (L) (m-pvc) (ppm or mg/L) (mV) uS/cm) 2:30 0.5 6.36 1.5/2 NVO -NTU7 35.6 00m1/m 6.74 42.7 16.1 2 slug of something 6.09 5.79 42.1 NTU + 7.7 1:55 1.0 1.512 100m1/m 113.4 16.0 40 1.6 1.512 C.75 112.9 6.04 44.0 160 6.8 100pl /m 5.4 2.0 6.04 45.7 2:45 1.512 100nun Acceptable Parameter Range: ± 10% ± 0.05 ± 10 mV ± 0.2 °C ± 10% turbidity (if using a turbidity meter) Analytes Sampled for: **Bottles Collected** QA/QC Information **Field Commets** Field Filtered: Unfiltered: x 40 mL Vial (HCI) x 60 mL Ferrous x 60 mL metals (HNO₃) Bore volume calculation, bore condition, fate of tubing, redox correction etc. x 40 mL Vial (H2SO4) x 100 mL Amber x 250 mL Plastic 0.0PPM-B6 Me OH = 7.5 O. Ippm - downhole $0_2 = 2.9$ Approval and Distribution Victor W 13/11/18 CO = 0 -Efeldwork Staff Signature Checker Name and Signature Date 13/11/18 Project Manager Signature Date Distribution: Project Central File

Project Name:	171	01 00	m l		17.5					Bore ID: 60	15
Client:		2C PF	7.11 51	ct Number:		4690	PM Name	21	SEAN MUDGENS		8118
Chent.			nformation	ct Location:		MR4 VMIL		The second second	RITLT	Well Development or Well Sar	npling Event? (circle)
Date of GW Le	evel: 22/	18/18	Bore Radius (mm):	250	Chem Kit Serial	meter Info. I No.: <i>QSS 5</i>	□ Dec	contaminated	Sampling Method For Every Pump rate: 1001	Hydrasleev	e info. Monitoring
Depth to GW (41-11-11-11	Screen Interval (m):	_	Chem Kit Mode		Dec	ficated	Intake depth:	Hydrasleeve Type:	sequence followed (number in order):
Bore Depth (m-		38	Casing Radius (mm):			lox: Y / N	FI Dis	posable	□ Bailer □ Hydrasl	eeve Sampling Depth (m-pvc):	Gauging
Depth to Produ			Cover Type (gatic/stic		(The correction to	apply is probe dep	endent) 🔳 Oth	er (specify)	Peristaltic Pump Waterra		Hydrasleeve in
Product Thickn	ess (m):		Bore Locked (YES/N)	ninge		thod: 🗖 Down			Other (specify)	Sampling Start Time:	Hydrasleeve out
			Key Type (if applicable	e):		☐ Retrie	eved		(4)		Parameters
Calculated bo	re volume (L):	_	Includes/ excludes t	ore annulus (circle)	# purge volume			Total purged volume (L):		Parameters
							Quality Param		retar parged volume (L).		
Time	Cumulative Vol. Removed (L)	SWL (m-pvc	Pump Rate	DO (ppm or mg/L)	E.C. (mS/cm or µS/cm)	рН	Redox (mV)	Temp °C		Odour, Colour, Turbidity	
15:20	0.5	1.44	7 100 ml/n	2.96	115.5	6.28	65-8	17.8	10.0 NTU	1/1/0 -11	ignt Luibian
15.25	1.0	1.44	7 1	2.65	167.0	6.02	69.3	17.9		14.0	711 - 410100
15:30	1.5	1-46	17	2.67	179.0	6.06					
15:35	2.0	1.44		2.62	185.8	6.06	69.0	17.9	6.2		
		THE REAL PROPERTY AND ADDRESS OF THE PERSON NAMED IN	Parameter Range:	± 10%	± 3%	± 0.05	± 10 mV	± 0.2 °C	±	10% turbidity (if using a turbidity meter)	
100000000000000000000000000000000000000	es Sampled for	G.		Bottles Col	lected		QA/Q	Information		Field Commets	
Field Filtered:	Unfiltered:	-	x 40 mL Vial (HCI)			x 60 mL metals (HN	IO ₃)		Bore volume calcula	ation, bore condition, fate of tubing, redox c	orrection etc.
			x 40 mL Vial (H ₂ SC	x 100	mL Amber	x 250 mL Plastic	0		O. Oppm	downhole bachground.	14.0
		200	Арг	proval and Distril	oution				-	bachground.	
	11/1		22/8/1	18	Vis	6.15		13/11/18	_		
Fieldwo	Staff Signatu	re	Date			me and Signatu	re	Date			
U	5-65	_	13/11/18								
	t Manager Signa		Date		bution: Project Ce						

FQM - Groundwater Sampling and Purging Record

Destant Massac		+01	252		1 4 0 0	21101				Bore ID:		V 8A
Project Name:	7	TRC -		ct Number:		84690	18500	l Name:	SEAN HUDGENS	Sample Date:		18/18
Client:	Con		NETHANEX Projection	ct Location:		ARA VAZ		eldwork Staff:	RJ + LT	Well Developm	ent or Well Sam	pling Event? (circle)
Date of GW L	The second secon	STREET, SQUARE, SQUARE	Bore Radius (mm):	150		ameter Info.		econtamination	Sampling Method		Hydrasleeve	
Depth to GW		064	-	150		No.: 055		Decontaminated	Low Flow Pump rate: 100 ml	/n Hydrasleeve	Size:	Monitoring sequence followed
1917 10119 1210		.40	Screen Interval (m):	50	Chem Kit Mode	DM:	111	Dedicated	Intake depth:	Hydrasleeve	Type:	(number in order):
Bore Depth (m		170	Casing Radius (mm):			dox: Y / N	77.0	Disposable	□ Bailer □ Hydraslee	eve Sampling De	epth (m-pvc):	Gauging
Depth to Prod			Cover Type (gatio stic					Other (specify)	Peristaltic Pump Waterra	Hydrasleeve	Install time:	Hydrasleeve in
Product Thick	ness (m):		Bore Locked (YES/No		Parameter me	thod: II Dov			Other (specify)	Sampling Sta	art Time	Hydrasleeve out
			Key Type (if applicabl			I Ret	rieved				/	Parameters
Calculated be	ore volume (L):	_	Includes/ excludes I	ore annulus (d	circle)	# purge volur	mes remove	ed:	Total purged volume (L):			
						Wate	r Quality P	arameters				
Time	Removed (L)	SWL (m-pv	Pump Rate	DO (ppm or mg/L)	E.C. (mS/cm or µS/cm)	рН	Redo (mV)			Odour, Colour, T	urbidity	
16:00	0.5	3.00		7.06	1/5.6	7.10	64.2	2 17.	7 7.3 NIU		VVO	
16:05	1-0	3.00	77 1000	6.95	115.7	6.39	62.9	18.0	664/ 11		1	
16:10	1.5	1	700 12	6.94	116.0	6.20	62.6		7:00			
16115	2.0	\vdash	1 10 7	6.93	116.0	6.16	63.3					
	2.5	1							713			2
16:20	2.5	V	+	6.92	116.3	6.14	63.8	8 18.3	7.2 "	4		
	-											
							_					
	A	ccentable	Parameter Range:	± 10%	± 3%	± 0.05	± 10 m	nV ± 0.2 °C				
Analy	tes Sampled fo		arameter trange.	Bottles Col	1000000	1 0.03		QA/QC Informatio		0% turbidity (if using a		
Field Filtered:	Unfiltered:	69-3					_	GA/GC Informatio		Field Comn	ARTERIO.	
rieid riitered.	Onnitered:		x 40 mL Vial (HCI)		nL Ferrous	x 60 mL metals (Bore volume calculat	ion, bore condition, fa	te of tubing, redox co	prrection etc.
			x 40 mL Vial (H ₂ SC	(a) x 100	mL Amber	x 250 mL Plastic			BACKGROUND	70.0	ppm	
				\rightarrow					PRINCIPALE	-> '		
				aroval and Distrit					BACKGROUND	7 ,, ,		
	fl-m-			proval and Distril	2981001				O UPP			
Eleleler			23/8/18			chy W		13/11/1	.8			
rielaw	ork Staff Signat	ure	Date		Checker Na	ame and Signa	ture	Date				
			13/11/18						y			
Proje	ct Manager Sig	nature	Date	Distri	bution: Project C	entral File						

FQM - Groundwater Sampling and Purging Record

Project Name:	17	RL-PF	A) P	roject Number:	1/0	-011100	_	Day M.			Bore	Miles .	6	WAB
Client:			711	roject Location:		84690 T TARAN	AVI	PM Name:	Bur j	SEAN HUDGENS		ole Date:		18/18
Jirem.			Information	oject Location:		rameter Info.	1121	Fieldwork Staff:	_	RJ + LT	Wel			pling Event? (circ
Date of GW L		8/18	Bore Radius (mm	250		rial No.: DSS S	-	Decontamination	_	Sampling Method	11		lydrasleeve	Info. Monitering
Depth to GW		579	Screen Interval (m		Chem Kit Mo			Decontaminated Dedicated	4~	Low Flow Pump rate: 100m	1/1			sequence followe
Bore Depth (n			Casing Radius (m			edox: Y / N	(1	Disposable	100	Intake depth:		Hydrasleeve Type		(number in order
Depth to Prod		_	Cover Type (gatic		100000000000000000000000000000000000000	PORTERO WILLIAM DR		Other (specify)	_	Bailer Hydraslee	eve	Sampling Depth (r	- /	Gauging
Product Thick	ness (m):	_	Bore Locked (YES			ethod: Fu Dow		Other (specify)		Peristaltic Pump Waterra	-	Hydrasleeve Instal		Hydrasleeve in
			Key Type (if applic			FI Retr	1011/00/1015		1, ,	Other (specify)	-	Sampling Start 7fn	ne:	Hydrasleeve o
Calculated b	ore volume (L):	_		es bore annulus (circle)	# purge volun	New York	oved:	Total	ol nurred values (L)	_	/		Parameters
	, ,		Interested Character	es pore armolas (oli Gle)	THE R. P. LEWIS CO., LANSING, MICH.	_	y Parameters	1018	al purged volume (L):	-			
Time	Cumulative Vol Removed (L)	. SWL	Pump Pate	DO (ppm or mg/L)	E.C. (mS/cm or	pH	R	edox mV) Temp s	°C		Od	our, Colour, Turbidi	ty	
8:48	0.5	1.68	3 100ml	10 1.84	μS/cm) 634	6.80	103	-2 15.0	u	ISNTU .	_	0/1/0	- 110	
8:53	1.0	1.68		101	645	6.73	73		_	1.4 /12	- 1	NVO	-cle	
8:58	1.5	1		1.37	643	6.72	64			1.49 1/20	_			
9:03	2.0	1		1.34		6-72			_	1				
, 0,	-	-		7.5.	642	6-72	37	2-9 16.1		1.85				
		-		_										- 3
									_					
							-				_			
		-					_							
		_	Parameter Rang		± 3%	± 0.05	±1	0 mV ± 0.2 *0	С	± 10	% turb	idity (if using a turbidi	ity meter)	
Analy	tes Sampled f	or:		Bottles Col	lected			QA/QC Informati	on			Field Commets		
ield Filtered:	Unfiltered		x 40 mL Vial (F	ICI) × 60	mL Ferrous	x 60 mL metals (H	HNO ₃)	QAQLO8-0	DUP	Bore volume calculation	on, bor	e condition, fate of tu	bing, redox co	rrection etc.
			x 40 mL Vial (H	1 ₂ SO ₄) x 100	mL Amber	x 250 mL Plastic				Needs mank				
	- 1							QAQLID-RI	NIATO	IVEEUS MIGHT	01	ellent	to a	illess
					1			07/40/0		had to ball	0	ut wat	erw	bucket
	P)			Approval and Distri	bution				10	and ball o	41	· wate	1-be	low wel
	fly		23/8/1	8		Victor W		13/11/	18	had to ball and ball o	asi	ne bag		
Fieldw	ork Staff Signat	ture	Date	-	Checker	Name and Signat	ure	Date				0		
-	219		13/11/1	L 8					33	0.0ppm	6	the RI	+10	ndolor.
Proje	ect Manager Sig	nature	Date	Distr	bution: Project	Central File				Orppin	00	00	, 400	- muc

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FQM - Groundwater Sampling and Purging Record

Project Name:	701	- PFA	5	Proje	ct Number:	100	OULON	200	M Name	No.		CEAN HUNIEN				9AA
			MANER				84690	9522	Statistical Color	72.0	Щ	SEAN HUDGENS	400000000000000000000000000000000000000			108/18
lient:		-	ormation	Proje	ct Location:		TARANI	1000		k Staff:		RJ + LT	Well			pling Event? (cire
ate of GW Level:	THE RESERVE OF THE PERSON NAMED IN				000		ameter Info.		-	tamination		Sampling Method			Hydrasleeve	PROPERTY OF THE PARTY OF THE PA
	23/8/18		ore Radius (n		250		al No.: DSS 5				14	Low Flow Pump rate: 100 M	1/1	Hydrasleeve Size	91	Monitoring sequence follow
epth to GW (m-pvc):	georg.		creen Interva	7	_	Chem Kit Mod	el: —	- 1	De	dicated		Intake depth:		Hydrasleeve Typ	e:	number in orde
ore Depth (m-pvc):	4.90	С	asing Radius	(mm):	50	DISTRICT CONTRACTOR	dox: Y / N			posable	П	Bailer	eve	Sampling Depth	(m-pvc):	Gauging
epth to Product (m-pv	vc): —	С	over Type (ga	atic/stic	ck up):	(The correction t	to apply is probe de	ependent)	I Oth	ner (specify)	FI	Peristaltic Pump Waterra		Hydrasleeve Inst	all time:	Hydrasleeve
roduct Thickness (m):		В	ore Locked	YESAN	O):	Parameter me	ethod: T Dow	mhole			П	Other (specify)		Sampling Start 7	me:	Hydrasleeve
		K	ey Type (if ap	plicabl	le): MANHOLE		□ Retr	ieved			Г	The state of the s				Parameters
alculated bore volui	me (L):	- Ir	cludes/ excl	ludes l	bore annulus (d	circle) —	# purge volum		red: -		Tota	al purged volume (L):		_		T dramotoro
		17						Quality			TOLL	ar parged volume (L).	_		_	
	ative Vol. oved (L)	SWL (m-pvc)	Pump I	Rate	DO (ppm or mg/L)	E.C. (mS/cm or μS/cm)	рН	Red (m)	ox	Temp °C			Ode	our, Colour, Turbi	dity	
0:30 0.	5 2	.221	100m	1/m	2-32	967	6.50	-4.	5	15.7	2	3.7 NTU	- 1 3	- nra	anır	ndnur
0:35 /	0	١	i		1.29	988	6.53			15.6		2.3		-00		visible
10:40 /-		_	+ +			996				73.0	2	20 0		770	Sheen	VISIOIE
			-		1.18	0.000	6.54			_	_	3.0				
10:45 2	.0	V	1		1.13	1004	6.55	-42	.7	15-8	3	2.2				
																2
		ptable P	arameter R	ange:		± 3%	± 0.05	± 10	mV	± 0.2 °C		±1	0% turb	idity (if using a turb	idity meter)	
Analytes San					Bottles Col	lected			QA/Q	C Information	on			ield Commets		
eld Filtered: Ur	nfiltered:		x 40 mL Vi	al (HCI)	x 60	mL Ferrous	x 60 mL metals (F	HNO ₃)				Bore volume calcular	tion, bor	e condition, fate of	tubing, redox co	prrection etc.
			x 40 mL Vi	al (H ₂ S0	O ₄) x 100	mL Amber	x 250 mL Plastic	8				NEEDS MANHE	DLE	LIFTE	R.	
														- 11	-04	er +
								1				- Well Hale	ap.	orract.		
				Ap	proval and Distri	bution					univa	> well lidle needed bail -> Sheen under well	rig	out.	11	ater
The	6		23/ Date	18/1	18	Va	ike W			13/11/1	8	Asheen	VI	1 00	Ura Vo	led con
Fieldwork Staff	f Signature		Date	е	· -		lame and Signat	ure	_	Date	_	under well	CHO	-400	ve Jea	inca eap
50	15		13/11	/18								PID - 0.0 PP	m	backg	round	
	ager Signatu	IFO.	Date		Dist	ibution: Project (Control File					1010-16300	na	ownho	le.	

FQM - Groundwater Sampling and Purging Record

Project Name:		TRC-PI			ct Number:	6058	34690	P	M Name:	n.X.	SEAN HUDGENS	Bore	ple Date:		VOMI ->
ent:		RC/MC			ct Location:	OMAT	14 / TANK	TARIF	leldwork Staff:		RJ +LT	Description.			ppling Event? (circle)
		eral Bore In				Para	ameter Info.		Decontamination		Sampling Method	***		rasleev	
Date of GW Le	evel: 23/	18/18	Bore Radiu	s (mm):	250	Chem Kit Seria	No.: 055 5	,	Decontaminated	TV	Low Flow Pump rate: 100A	11/1			Monitoring
Depth to GW (0	Screen Inte		Napor	Chem Kit Mode	el:		Dedicated	1	Intake depth:		Hydrasleeve Type:		sequence followed
Bore Depth (m	i-pvc):	1.0	Casing Rad	lius (mm)	50	Corrected Rec	dox: Y / N		Disposable	П	Bailer Hydraslee	ve	Sampling Depth (m-p	ovc)-	(number in order): Gauging
Depth to Produ			Cover Type			(The correction to	o apply is probe depe	ndent) I	Other (specify)	-	Peristaltic Pump Waterra		Hydrasleeve Install ti	/	Hydrasleeve in
Product Thickr	ness (m):	_	Bore Locke	d (YES/N	033		thod: Downh		(-)//	-	Other (specify)		Sampling Start Time	000000	
			Key Type (i	fapplicab	le):		□ Retriev	ed			other (opeony)		Jamping Gigit Hillio		Hydrasleeve out Parameters
Calculated bo	ore volume (L):		Includes/ e	xcludes	bore annulus (c	circle)	# purge volume:	remov	/ed:	Tota	l purged volume (L):		/		rarameters
							The same of the sa		Parameters	-	parged voiding (E).	-		_	
Time	Cumulative Vo Removed (L)		Pur	np Rate	DO (ppm or mg/L)	E.C. (mS/cm or µS/cm)	pH	Red (m)				Od	lour, Colour, Turbidity	Hin.	
11:35	0.5	1.83	6 100	mllm	8.85	135.7	7.40	5.	2 17-6		£ 2 NT11				
11:40	1.0	1.83		1,117	8.88	135.4	-	5-3			6.2 NTU	8	A*	_	NVO
11:45	1.5	1			8.92						5-6				
11:50		1	-			134.8	6.71	7-6			70-100- FI	UL	fuanny	7	
11.30	2.0	-	V		8.95	134.6	6.69	8.4	4 17.0	1	1.4 NTU				V
	A	cceptable F	Parameter	Range	± 10%	± 3%	± 0.05	± 10 r	W I						
Analyt	es Sampled f			rtungen	Bottles Coll		1 0.00	_	mV ± 0.2 °C	_	± 10		idity (if using a turbidity i	meter)	
ield Filtered:	Unfiltered		x 40 mL	Vial (HCI)	x 60 m	nL Ferrous	x 60 mL metals (HNC	_	ariao mormani	***	Date value and the	_	Field Commets		
				Vial (H ₂ SC		mL Amber	x 250 mL Plastic	/3/		ŀ	Bore volume calculation	on, bo	re condition, fate of tubin	g, redox co	rrection etc.
		t			100	inc Amber 1	A 250 IIIL Plastic	\exists		- 1	0.3 ppm =	18	ackgrou	nd	
										- 1	0.0 ppm -	70	downhol	0	
		MALLEY LE	- EL - 197	Ap	proval and Distrib	oution				103	17				
Fieldwo	ork Staff Signat	ture		/8/18 late	*		hy W ime and Signature		13/11/1	.8					
Projec	ct Manager Sig	nature		11/18 ate	Distrit	oution: Project Ce	entral File								

ANZ FQM - Groundwater Sampling and Purging Record

Project Name:	17	TRL- PF	AJ	Project	Number:	1605	84690	PI	M Name:	-	FAN	HUDGENS	Bore	Allenda		28
Client:	7	RUIMO	FTHANEX	Project	Location:		TA 2 TANK	P3	The same of the sa		21 +		_			8 / / 8 pling Event? (circle)
		_	Information				ameter Info.	The second secon	Decontamination	The second secon		g Method	AACI		drasleeve	
Date of GW Le	vel: 23/	8/18	Bore Radius (n	nm): 👙	250	Chem Kit Seria	al No.: DSS S	5 1	Decontaminated	FLOW	THE RESERVE AND ADDRESS OF THE PARTY.	Marie Street, Square,	11/m	Hydrasleeve Size:	ar a a receive	Monitoring
Depth to GW (r	m-pvc): 5-	638	Screen Interva	(m):	-	Chem Kit Mod	el: —		Dedicated	1	-	ke depth:	/	Hydrasleeve Type:		sequence followed
Bore Depth (m-	-pvc): /2	-0	Casing Radius	(mm):	50	Corrected Re	dox: Y / N		Disposable	ΓΙ Baile		Hydraslee	eve	Sampling Depth (m-	ovc)-	(and mber in order): Gauging
Depth to Produ	ict (m-pvc):	_	Cover Type (ga	atic/stick	up)3	(The correction t	o apply is probe de		Other (specify)		-	p Vaterra		Hydrasleeve Install		Hydrasleeve in
Product Thickn	ess (m):	_	Bore Locked (ES(NO)	1	Non-commenced to a series of	ethod: FL Dow		Care (openin))		er (specify)			Sampling Start Time	20000	Hydrasleeve out
			Key Type (if ap	plicable)	:		□ Retr	ieved	-	T Our	ci (specify)		-	7	*	Parameters
Calculated bo	re volume (L)):	Includes/ excl	udes bo	re annulus (c	ircle)	# purge volum		/ed:	Total pur	rged volun	ne (L):				raiameters
									Parameters	To the part	300.000		_		_	
Time	Cumulative Vo Removed (L)		Pump	Rate	DO ppm or mg/L)	E.C. (mS/cm or µS/cm)	рН	Red (m)		С		Marie	Od	lour, Colour, Turbidity		
12:15	0.5	5.6	38 100m	Ilm	1.57	402.2	6.51	2-6	6 16-2	2	2.2	NTU		> NVO		
12:20	1-0	5.6	79	14	1.04	406.1	6.46	-13-			3.6	54				
12:25	1.5)			0.99	405.7	6.46	-16.			.7	**	_			
12:30	2.0	1	1		0.87	405.2	6.47	-20			4.4					
165		+	_	_			0.77	20	/ /0.3	-	7.0/					
		1		-												
				_												
												2				
						10										
										_						
			_	_						_			_			
		-	_													
				_												
Analys			Parameter Ra	ange:	± 10%	± 3%	± 0.05	± 10				± 10	0% turb	oidity (if using a turbidity	meter)	
A CONTRACTOR	es Sampled				Bottles Coll	ected		_	QA/QC Information	on				Field Commets		
Field Filtered:	Unfiltered	d:	x 40 mL Via			L Ferrous	x 60 mL metals (H	HNO ₃)			Во	re volume calculat	tion, bo	re condition, fate of tubi	ng, redox co	rrection etc.
			x 40 mL Via	I (H ₂ SO ₄)	x 100	mL Amber	x 250 mL Plastic				0.0	oom -	- B	acharour	74	
											200		1	achgroundle		
				Ann	ovel and Dist II	villan				_ 0	1.09	91191 -	010	1000		
	18-m		22.15		oval and Distrib	74.74										
Fieldwo	ork Staff Signa	ature	23/8/ Date		_		ame and Signat	1150	13/11/1	L8						
, returno	565		77,023			Checker N	anne and Signat	ure	Date							
Denie	at Manager C'	anatura	13/11							- 1						
Projec	ct Manager Sig	gnature	Date	E	Distrib	outlon: Project C	entral File									

AECOM

ANZ

110

FQM - Groundwater Sampling and Purging Record

Q4AN(EV)-405-FM1

D		201 1	-a - casao - le								Bore ID:	6	W29
Project Name:			FAS SAMPINAPRO	ect Number:		84690	198	M Name:		SEAN HUDGENS	Sample Date:		18/18
Client:				ect Location:	OMA	TA 2 TAN	KFAR	eldwork Staff:		RJ + LT (Methanex	Well Development o	r Well San	nnling Event? (circle)
5		The second second	Information			ameter Info.		Decontaminatio	n	Sampling Method		ydrasleev	
Date of GW L		8/18	Bore Radius (mm):	250	Chem Kit Seri	al No.: 15/055	5 1	Decontaminate	be	Low Flow Pump rate:	Hydrasleeve Size:		Monitoring
Depth to GW		018	Screen Interval (m):		Chem Kit Mod	el:		Dedicated	\neg	Intake depth:	Hydrasleeve Type:		sequence followed
Bore Depth (n		5.0	Casing Radius (mm	*****	Corrected Re	dox: Y N	1	Disposable		Bailer Hydraslee			(number in order): Gauging
Depth to Prod	uct (m-pvc):		Cover Type (gatic	lick up:	(The correction	to apply is probe de	pendent) I	Other (specify)	,	Peristaltic Pump Waterra	Hydrasleeve Instal		
Product Thick	ness (m):	_	Bore Locked (YES)	VOI		ethod: FI Dow		(2)		Other (specify)	Sampling Start Tiff		Hydrasleeve in
			Key Type (if applica	ble): NA	1	Retri	eved		1	- Other (specify)	Sampling Start Air	Ю.	Hydrasleeve out
Calculated b	ore volume (L): —	Includes/ excludes	bore annulus (circle)	# purge volum		ved:	1	Total purged volume (L):			Parameters
								Parameters	- 1	otal purged volume (L).		_	
Time	Cumulative V			DO (ppm or mg/L)	E.C. (mS/cm or	рН	Red (m)	ox Tame	°C		Odour, Colour, Turbidi	tv	
13:10		9.0	7/8	ANADADS AND SANS	μS/cm)	1 22	10						
13710		9.0	70 _	7.37	130.0	6.32	27	./ 18	.7	NVO			
		-					*						
						35							
						1							
									_				
		_				-							
		-											
		-											
									_				
		_							_				
	-	-											
		Acceptabl	e Parameter Range	± 10%	± 3%	± 0.05	± 10 i	mV ± 0.2	°C	+10	% turbidity (if using a turbidit	w motor)	
Analy	tes Sampled	for:		Bottles Col	lected			QA/QC Informa	tion		Field Commets	y meter)	
Field Filtered:	Unfiltere	đ:	x 40 mL Vial (HCI) x 60 r	mL Ferrous	x 60 mL metals (H	NO ₃)		****	Bore volume calculation	n, bore condition, fate of tul	dan and a	
			x 40 mL Vial (H ₂ S	O ₄) × 100	mL Amber	x 250 mL Plastic						The second second second	rection etc.
										0.0 ppm	Backgrou	na	
							_				1 tinho	le.	
			A	oproval and Distri	oution					-	aour	W-00 -500)	
1	1		23/8//1 Date	3	1/2	by W		13/11/	1.8	7			
Fieldwe	ork Staff Signa	iture	Date	_		ame and Signatu	ire	Date		-			
	5.15		13/11/18			-23		SAME.	33				
Proje	ct Manager Sig	gnature	Date	Distri	bution: Project C	entral File							
				2,301	- Laon. Floject C	United 1 lie							

Q4AN(EV)-405-FM1 FQM - Groundwater Sampling and Purging Record (Q4AN(EV)-405-FM1) Revision 2 July 12, 2016

Appendix B

Laboratory Analytical Reports



AsureQuality Limited | 1C Quadrant Drive | Waiwhetu | Lower Hutt 5010 | Wellington | New Zealand PO Box 31242 | Lower Hutt 5040 | Wellington | New Zealand t. +64 4 570 8800 | e. cswellington@asurequality.com | w. www.asurequality.com | Global Experts in Food Assurance

Certificate of Analysis

Final Report

Sean Hudgens
AECOM Consulting Services - Wellington
PO Box 27277
Wellington 6141
New Zealand

PO Number: 73494

Submitted by:
Taranaki Regional Council

Private Bag 713

Stratford 4352

New Zealand

Report Issued: 18-Sep-2018 AsureQuality Reference: 18-213689 Sample(s) Received: 23-Aug-2018 07:30

Results

The tests were performed on the samples as received.

Customer Sample Name: GW21 AsureQuality ID: 18-213689-1 Sample Description: Groundwater Sample Condition: Acceptable Sampled Date: 21-Aug-2018 Result Unit **Method Reference** Poly- and Perfluorinated Alkyl Substances (PFAS) in Water Perfluoroalkylsulfonic acids **PFPrS** < 0.0010 AsureQuality Method (LC-MS/MS) μg/L PFBS AsureQuality Method (LC-MS/MS) < 0.0010 μg/L PFPeS < 0.0010 μg/L AsureQuality Method (LC-MS/MS) di-PFHxS (1) < 0.0010 μg/L AsureQuality Method (LC-MS/MS) mono-PFHxS (1) <0.0010 AsureQuality Method (LC-MS/MS) µg/L L-PFHxS (1) < 0.0010 μg/L AsureQuality Method (LC-MS/MS) Total PFHxS (3) AsureQuality Method (LC-MS/MS) < 0.0010 μg/L **PFHpS** <0.0010 μg/L AsureQuality Method (LC-MS/MS) di-PFOS (5) <0.0010 AsureQuality Method (LC-MS/MS) μg/L mono-PFOS (5) < 0.0010 μg/L AsureQuality Method (LC-MS/MS) L-PFOS (5) < 0.0010 μg/L AsureQuality Method (LC-MS/MS) Total PFOS (7) AsureQuality Method (LC-MS/MS) < 0.0010 μg/L Sum PFHxS+PFOS (1) < 0.0010 AsureQuality Method (LC-MS/MS) µg/L **PFNS** <0.0010 µg/L AsureQuality Method (LC-MS/MS) AsureQuality Method (LC-MS/MS) **PFDS** < 0.0050 μg/L Perfluoroalkylcarboxylic acids PFBA 0.014 AsureQuality Method (LC-MS/MS) μg/L **PFPeA** 0.035 μg/L AsureQuality Method (LC-MS/MS) **PFHxA** 0.029 AsureQuality Method (LC-MS/MS) μg/L 0.035 **PFHpA** μg/L AsureQuality Method (LC-MS/MS) **PFOA** 0.017 μg/L AsureQuality Method (LC-MS/MS) **PFNA** 0.0058 AsureQuality Method (LC-MS/MS) µg/L **PFDA** < 0.0010 μg/L AsureQuality Method (LC-MS/MS) PFUnDA <0.0010 AsureQuality Method (LC-MS/MS) μg/L **PFDoDA** NR AsureQuality Method (LC-MS/MS) µg/L PFTrDA NR AsureQuality Method (LC-MS/MS) µg/L

AsureQuality has used reasonable skill, care, and effort to provide an accurate analysis of the sample(s) which form(s) the subject of this report. However, the accuracy of this analysis is reliant on, and subject to, the sample(s) provided by you and your responsibility as to transportation of the sample(s). AsureQuality's standard terms of business apply to the analysis set out in this report.

Test	Result	Unit	Method Reference
PFTeDA	NR	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamides			, isalogually method (20 mo/mo)
PFOSA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
NEtFOSA-M	NR	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSA-M	NR	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamidoacetic acids		- 10	
NEtFOSAA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSAA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamidoethanols			
NEtFOSE-M	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSE-M	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
Telomere Sulfonic acids			
4:2 FTS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
6:2 FTS	0.0015	μg/L	AsureQuality Method (LC-MS/MS)
8:2 FTS	0.0012	μg/L	AsureQuality Method (LC-MS/MS)
Internal Standards			
M3PFBS	91	%	AsureQuality Method (LC-MS/MS)
M3PFHxS	100	%	AsureQuality Method (LC-MS/MS)
M8PFOS	121	%	AsureQuality Method (LC-MS/MS)
M4PFBA	63	%	AsureQuality Method (LC-MS/MS)
M5PFPeA	88	%	AsureQuality Method (LC-MS/MS)
M5PFHxA	89	%	AsureQuality Method (LC-MS/MS)
MPFHpA	89	%	AsureQuality Method (LC-MS/MS)
M8PFOA	89	%	AsureQuality Method (LC-MS/MS)
M9PFNA	94	%	AsureQuality Method (LC-MS/MS)
M6PFDA	116	%	AsureQuality Method (LC-MS/MS)
M7PFUnDA	199 (R)	%	AsureQuality Method (LC-MS/MS)
MPFDoDA	NR	%	AsureQuality Method (LC-MS/MS)
MPFTeDA	NR	%	, , ,
			AsureQuality Method (LC-MS/MS)
MPFOSA	81 NB	%	AsureQuality Method (LC-MS/MS)
DNEtFOSA	NR	%	AsureQuality Method (LC-MS/MS)
DNMeFOSA	NR	%	AsureQuality Method (LC-MS/MS)
DNEtFOSAA	148	%	AsureQuality Method (LC-MS/MS)
DNMeFOSAA	133	%	AsureQuality Method (LC-MS/MS)
DNEtFOSE	133	%	AsureQuality Method (LC-MS/MS)
DNMeFOSE	92	%	AsureQuality Method (LC-MS/MS)
M4:2FTS	90	%	AsureQuality Method (LC-MS/MS)
M6:2FTS	77	%	AsureQuality Method (LC-MS/MS)
M8:2FTS	100	%	AsureQuality Method (LC-MS/MS)
R = Recovery outside method limits			
ustomer Sample Name: GW22			AsureQuality ID: 18-213689-
ample Description: Groundwater			
ample Condition: Acceptable	Sampled Date: 21-Aug-2018		
Test	Result	Unit	Method Reference
bly- and Perfluorinated Alkyl Substances (PFAS) i	in Water		
Perfluoroalkylsulfonic acids			
PFPrS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFBS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFPeS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
		, 5	,(

Test	Result	Unit	Method Reference
di-PFHxS (1)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
mono-PFHxS (1)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
L-PFHxS (1)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Total PFHxS (3)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFHpS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
di-PFOS (5)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
mono-PFOS (5)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
L-PFOS (5)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Total PFOS (7)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Sum PFHxS+PFOS (1)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFNS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFDS	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
Perfluoroalkylcarboxylic acids		10	, , ,
PFBA	0.0069	μg/L	AsureQuality Method (LC-MS/MS)
PFPeA	0.0018	μg/L	AsureQuality Method (LC-MS/MS)
PFHxA	0.0019	μg/L	AsureQuality Method (LC-MS/MS)
PFHpA	0.0023	μg/L	AsureQuality Method (LC-MS/MS)
PFOA	0.0029	μg/L	AsureQuality Method (LC-MS/MS)
PFNA	0.0012	μg/L	AsureQuality Method (LC-MS/MS)
PFDA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFUnDA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFDoDA	NR	μg/L	AsureQuality Method (LC-MS/MS)
PFTrDA	NR	μg/L	AsureQuality Method (LC-MS/MS)
PFTeDA	NR	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamides	TWY	μg/L	Addressed in the first (LO MO/MO)
PFOSA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
NEtFOSA-M	NR	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSA-M	NR	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamidoacetic acids		7.0	
NEtFOSAA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSAA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamidoethanols			
NEtFOSE-M	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSE-M	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
Telomere Sulfonic acids			
4:2 FTS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
6:2 FTS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
8:2 FTS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Internal Standards			
M3PFBS	93	%	AsureQuality Method (LC-MS/MS)
M3PFHxS	94	%	AsureQuality Method (LC-MS/MS)
M8PFOS	120	%	AsureQuality Method (LC-MS/MS)
M4PFBA	65	%	AsureQuality Method (LC-MS/MS)
M5PFPeA	89	%	AsureQuality Method (LC-MS/MS)
M5PFHxA	90	%	AsureQuality Method (LC-MS/MS)
MPFHpA	92	%	AsureQuality Method (LC-MS/MS)
M8PFOA	95	%	AsureQuality Method (LC-MS/MS)
M9PFNA	93	%	AsureQuality Method (LC-MS/MS)
M6PFDA	127	%	AsureQuality Method (LC-MS/MS)
	·	**	

lethod Reference	Unit	Result	Test
sureQuality Method (LC-MS/MS)	%	201 (R)	M7PFUnDA
sureQuality Method (LC-MS/MS)	%	NR	MPFDoDA
sureQuality Method (LC-MS/MS)	%	NR	MPFTeDA
sureQuality Method (LC-MS/MS)	%	108	MPFOSA
sureQuality Method (LC-MS/MS)	%	NR	DNEtFOSA
sureQuality Method (LC-MS/MS)	%	NR	DNMeFOSA
sureQuality Method (LC-MS/MS)	%	152 (R)	DNEtFOSAA
sureQuality Method (LC-MS/MS)	%	133	DNMeFOSAA
sureQuality Method (LC-MS/MS)	%	214 (R)	DNEtFOSE
sureQuality Method (LC-MS/MS)	%	151 (R)	DNMeFOSE
sureQuality Method (LC-MS/MS)	%	182 (R)	M4:2FTS
sureQuality Method (LC-MS/MS)	%	79	M6:2FTS
sureQuality Method (LC-MS/MS)	%	115	M8:2FTS
sur	%	115	M8:2FTS R = Recovery outside method limits

Customer Sample Name: GW31 AsureQuality ID: 18-213689-3

Sample Description: Groundwater

Report Number: 1240936

Sample Condition: Acceptable Sampled Date: 21-Aug-2018

Test Result Unit Me

PFPrS <0.0010	Test	Result	Unit	Method Reference
PFPrS <0.0010	ly- and Perfluorinated Alkyl Substances (PFAS)	in Water		
AsureQuality Method (LC-MS/MS) PFPRS < 0.0010 µg/L AsureQuality Method (LC-MS/MS) PFPRS < 0.0050 µg/L AsureQuality Method (LC-MS/MS) PFPRS	Perfluoroalkylsulfonic acids			
AsureQuality Method (LC-Ms/Ms) AsureQuality Method (LC-Ms/Ms)	PFPrS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
	PFBS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Manual PFHxS (1)	PFPeS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
AsureQuality Method (LC-MS/MS)	di-PFHxS (1)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Total PFHxS (3)	mono-PFHxS (1)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PPHpS	L-PFHxS (1)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
AsureQuality Method (LC-MS/MS) AsureQuality Method (LC-MS/MS)	Total PFHxS (3)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
March Mar	PFHpS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
L-PFOS (5)	di-PFOS (5)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Total PFOS (7) Young Yo	mono-PFOS (5)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Sum PFHxS+PFOS (1) <0.0010 μg/L AsureQuality Method (LC-MS/MS) PFNS <0.0010	L-PFOS (5)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFNS	Total PFOS (7)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFDS < <0.0050 µg/L AsureQuality Method (LC-MS/MS) Perfluoroalkylcarboxylic acids PFBA 0.11 µg/L AsureQuality Method (LC-MS/MS) PFPeA 0.52 µg/L AsureQuality Method (LC-MS/MS) PFHxA 0.30 µg/L AsureQuality Method (LC-MS/MS) PFHpA 0.18 µg/L AsureQuality Method (LC-MS/MS) PFOA 0.094 µg/L AsureQuality Method (LC-MS/MS) PFNA 0.030 µg/L AsureQuality Method (LC-MS/MS) PFNA 0.030 µg/L AsureQuality Method (LC-MS/MS) PFDA 0.0045 µg/L AsureQuality Method (LC-MS/MS) PFUNDA < <0.0010 µg/L AsureQuality Method (LC-MS/MS) PFDDDA NR µg/L AsureQuality Method (LC-MS/MS) PFDDDA NR µg/L AsureQuality Method (LC-MS/MS) PFTrDA NR µg/L AsureQuality Method (LC-MS/MS)	Sum PFHxS+PFOS (1)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Perfluoroalkylcarboxylic acids PFBA 0.11 μg/L AsureQuality Method (LC-MS/MS) PFPeA 0.52 μg/L AsureQuality Method (LC-MS/MS) PFHxA 0.30 μg/L AsureQuality Method (LC-MS/MS) PFHpA 0.18 μg/L AsureQuality Method (LC-MS/MS) PFOA 0.094 μg/L AsureQuality Method (LC-MS/MS) PFNA 0.030 μg/L AsureQuality Method (LC-MS/MS) PFDA 0.0045 μg/L AsureQuality Method (LC-MS/MS) PFUNDA <0.0010	PFNS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFBA 0.11 μg/L AsureQuality Method (LC-MS/MS) PFPeA 0.52 μg/L AsureQuality Method (LC-MS/MS) PFHxA 0.30 μg/L AsureQuality Method (LC-MS/MS) PFHpA 0.18 μg/L AsureQuality Method (LC-MS/MS) PFOA 0.094 μg/L AsureQuality Method (LC-MS/MS) PFNA 0.030 μg/L AsureQuality Method (LC-MS/MS) PFDA 0.0045 μg/L AsureQuality Method (LC-MS/MS) PFUnDA <0.0010	PFDS	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
PFPeA 0.52 μg/L AsureQuality Method (LC-MS/MS) PFHxA 0.30 μg/L AsureQuality Method (LC-MS/MS) PFHpA 0.18 μg/L AsureQuality Method (LC-MS/MS) PFOA 0.094 μg/L AsureQuality Method (LC-MS/MS) PFNA 0.030 μg/L AsureQuality Method (LC-MS/MS) PFDA 0.0045 μg/L AsureQuality Method (LC-MS/MS) PFUNDA <0.0010	Perfluoroalkylcarboxylic acids			
PFHxA 0.30 µg/L AsureQuality Method (LC-MS/MS) PFHpA 0.18 µg/L AsureQuality Method (LC-MS/MS) PFOA 0.094 µg/L AsureQuality Method (LC-MS/MS) PFNA 0.030 µg/L AsureQuality Method (LC-MS/MS) PFDA 0.0045 µg/L AsureQuality Method (LC-MS/MS) PFUnDA <0.0010	PFBA	0.11	μg/L	AsureQuality Method (LC-MS/MS)
PFHpA 0.18 μg/L AsureQuality Method (LC-MS/MS) PFOA 0.094 μg/L AsureQuality Method (LC-MS/MS) PFNA 0.030 μg/L AsureQuality Method (LC-MS/MS) PFDA 0.0045 μg/L AsureQuality Method (LC-MS/MS) PFUnDA <0.0010	PFPeA	0.52	μg/L	AsureQuality Method (LC-MS/MS)
PFOA 0.094 μg/L AsureQuality Method (LC-MS/MS) PFNA 0.030 μg/L AsureQuality Method (LC-MS/MS) PFDA 0.0045 μg/L AsureQuality Method (LC-MS/MS) PFUnDA <0.0010	PFHxA	0.30	μg/L	AsureQuality Method (LC-MS/MS)
PFNA 0.030 μg/L AsureQuality Method (LC-MS/MS) PFDA 0.0045 μg/L AsureQuality Method (LC-MS/MS) PFUnDA <0.0010	PFHpA	0.18	μg/L	AsureQuality Method (LC-MS/MS)
PFDA 0.0045 μg/L AsureQuality Method (LC-MS/MS) PFUnDA <0.0010	PFOA	0.094	μg/L	AsureQuality Method (LC-MS/MS)
PFUnDA <0.0010 μg/L AsureQuality Method (LC-MS/MS) PFDoDA NR μg/L AsureQuality Method (LC-MS/MS) PFTrDA NR μg/L AsureQuality Method (LC-MS/MS)	PFNA	0.030	μg/L	AsureQuality Method (LC-MS/MS)
PFDoDA NR μg/L AsureQuality Method (LC-MS/MS) PFTrDA NR μg/L AsureQuality Method (LC-MS/MS)	PFDA	0.0045	μg/L	AsureQuality Method (LC-MS/MS)
PFTrDA NR μg/L AsureQuality Method (LC-MS/MS)	PFUnDA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
	PFDoDA	NR	μg/L	AsureQuality Method (LC-MS/MS)
PFTeDA NR μg/L AsureQuality Method (LC-MS/MS)	PFTrDA	NR	μg/L	AsureQuality Method (LC-MS/MS)
	PFTeDA	NR	μg/L	AsureQuality Method (LC-MS/MS)

Test	Result	Unit	Method Reference
Perfluorooctanesulfonamides			
PFOSA	NR	μg/L	AsureQuality Method (LC-MS/MS)
NEtFOSA-M	NR	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSA-M	NR	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamidoacetic acids			
NEtFOSAA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSAA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamidoethanols			
NEtFOSE-M	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSE-M	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
Telomere Sulfonic acids			
4:2 FTS	0.0043	μg/L	AsureQuality Method (LC-MS/MS)
6:2 FTS	1.1	μg/L	AsureQuality Method (LC-MS/MS)
8:2 FTS	0.18	μg/L	AsureQuality Method (LC-MS/MS)
Internal Standards			
M3PFBS	72	%	AsureQuality Method (LC-MS/MS)
M3PFHxS	76	%	AsureQuality Method (LC-MS/MS)
M8PFOS	94	%	AsureQuality Method (LC-MS/MS)
M4PFBA	100	%	AsureQuality Method (LC-MS/MS)
M5PFPeA	102	%	AsureQuality Method (LC-MS/MS)
M5PFHxA	105	%	AsureQuality Method (LC-MS/MS)
MPFHpA	106	%	AsureQuality Method (LC-MS/MS)
M8PFOA	81	%	AsureQuality Method (LC-MS/MS)
M9PFNA	89		
		%	AsureQuality Method (LC-MS/MS)
M6PFDA	104	%	AsureQuality Method (LC-MS/MS)
M7PFUnDA	210 (R)	%	AsureQuality Method (LC-MS/MS)
MPFDoDA	NR	%	AsureQuality Method (LC-MS/MS)
MPFTeDA	NR	%	AsureQuality Method (LC-MS/MS)
MPFOSA	NR	%	AsureQuality Method (LC-MS/MS)
DNEtFOSA	NR	%	AsureQuality Method (LC-MS/MS)
DNMeFOSA	NR	%	AsureQuality Method (LC-MS/MS)
DNEtFOSAA	110	%	AsureQuality Method (LC-MS/MS)
DNMeFOSAA	103	%	AsureQuality Method (LC-MS/MS)
DNEtFOSE	117	%	AsureQuality Method (LC-MS/MS)
DNMeFOSE	79	%	AsureQuality Method (LC-MS/MS)
M4:2FTS	150	%	AsureQuality Method (LC-MS/MS)
M6:2FTS	113	%	AsureQuality Method (LC-MS/MS)
M8:2FTS	110	%	AsureQuality Method (LC-MS/MS)
	110	/0	Astregularity Metriod (EC-MS/MS)
R = Recovery outside method limits			
stomer Sample Name: GW33			AsureQuality ID: 18-213689
mple Description: Groundwater			
mple Condition: Acceptable	Sampled Date: 21-Aug-2018		
Test	Result	Unit	Method Reference
ly- and Perfluorinated Alkyl Substances (PFA	S) in Water		
Perfluoroalkylsulfonic acids			
PFPrS *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PFBS *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PFPeS *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
	*:***	r 5-	,,

Princip (1)* 40.010	Test	Result	Unit	Method Reference
Total PFNs (3)*	mono-PFHxS (1) *	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
PFIPAS	L-PFHxS (1) *	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
	Total PFHxS (3) *	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
MONDO PFOS (5)* <0.010	PFHpS *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
L PFOS (5)* 40.010 μg/L AureQuality Method (LC-MSAMS) Total PFOS (7)* 40.010 μg/L AureQuality Method (LC-MSAMS) SAM PFHAS-PFOS (1)* 40.010 μg/L AureQuality Method (LC-MSAMS) PFNS* 40.050 μg/L AureQuality Method (LC-MSAMS) PFNS* 40.050 μg/L AureQuality Method (LC-MSAMS) PFDS* 40.050 μg/L AureQuality Method (LC-MSAMS) PFDS* 40.010 μg/L AureQuality Method (LC-MSAMS) PFDA* 40.010 μg/L AureQuality Method (LC-MSAMS) PFPBA* 40.010 μg/L AureQuality Method (LC-MSAMS) PFPBA* 0.36 μg/L AureQuality Method (LC-MSAMS) PFPBA* 0.36 μg/L AureQuality Method (LC-MSAMS) PFPBA* 0.36 μg/L AureQuality Method (LC-MSAMS) PFNA* 0.36 μg/L AureQuality Method (LC-MSAMS) PFNA* 0.36 μg/L AureQuality Method (LC-MSAMS) PFNA* 0.050 μg/L AureQuality Method (LC-MSAMS) PFDA* 0.050 μg/L AureQuality M	di-PFOS (5) *	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
Total PFOS (7)	mono-PFOS (5) *	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
Sum PFHASPPOS (1)* <0.010 µgl. AsureQuality Method (LC-MSANS) PFNS* <0.050	L-PFOS (5) *	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
PFNS* < 0.050 µgl. AsureQuality Method (LC-MSMS) PFDS* < 0.050 µgl. AsureQuality Method (LC-MSMS) PFDS* < 0.050 µgl. AsureQuality Method (LC-MSMS) PFPA* < 0.10 µgl. AsureQuality Method (LC-MSMS) PFPA* 0.35 µgl. AsureQuality Method (LC-MSMS) PFPA* 0.36 µgl. AsureQuality Method (LC-MSMS) PFPA* 0.36 µgl. AsureQuality Method (LC-MSMS) PFPA* 0.06 µgl. AsureQuality Method (LC-MSMS) PFDA* 0.050 µgl. AsureQuality Method (LC-MSMS) PFDA* 0.050 µgl. AsureQuality Method (LC-MSMS) PFDDA* 0.050 µgl. AsureQuality Method (LC-MSMS) PFDDA* 0.10 µgl. AsureQuality Method (LC-MSMS) PFTDA* 0.10 µgl. AsureQuality Method (LC-MSMS) PFEDA* 0.10 µgl. AsureQuality Method (LC-MSMS) PFEDA* 0.10 µgl. AsureQuality Method (LC-MSMS) NIEFOSA*	Total PFOS (7) *	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
PFDS* AsureQuality Memod (LC-MSMS) Perfluoroallycarboxylio acids <	Sum PFHxS+PFOS (1) *	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
PFDS* 40.050 µg/L AsureQuality Method (LC-MSMS) PFBA* 4.0 µg/L AsureQuality Method (LC-MSMS) PFPBA* 0.35 µg/L AsureQuality Method (LC-MSMS) PFHAA* 0.34 µg/L AsureQuality Method (LC-MSMS) PFHAA* 0.67 µg/L AsureQuality Method (LC-MSMS) PFDA* 0.67 µg/L AsureQuality Method (LC-MSMS) PFDA* 0.050 µg/L AsureQuality Method (LC-MSMS) PFDA* 0.050 µg/L AsureQuality Method (LC-MSMS) PFDAA* 0.050 µg/L AsureQuality Method (LC-MSMS) PFDAA* 0.050 µg/L AsureQuality Method (LC-MSMS) PFDAA* 0.10 µg/L AsureQuality Method (LC-MSMS) PFDAA* 0.10 µg/L AsureQuality Method (LC-MSMS) PFTDAA* 0.10 µg/L AsureQuality Method (LC-MSMS) NEFOSA** 0.10 µg/L AsureQuality Method (LC-MSMS) NEFOSA** 0.10 µg/L AsureQuality Method (LC-MSMS) NeFOSA*	PFNS *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PFBA* < 0.10 µg/L AsureQuality Method (LC-MS/MS) PFPAA* 0.35 µg/L AsureQuality Method (LC-MS/MS) PFHAA* 0.36 µg/L AsureQuality Method (LC-MS/MS) PFHAA* 0.36 µg/L AsureQuality Method (LC-MS/MS) PFDA* 0.67 µg/L AsureQuality Method (LC-MS/MS) PFDA* -0.050 µg/L AsureQuality Method (LC-MS/MS) PFDA* -0.050 µg/L AsureQuality Method (LC-MS/MS) PFDA* -0.050 µg/L AsureQuality Method (LC-MS/MS) PFDA* -0.10 µg/L AsureQuality Method (LC-MS/MS) PFDA* -1.0 µg/L AsureQuality Method (LC-MS/MS) PFTDA* -1.0 µg/L AsureQuality Method (LC-MS/MS) PFTDA* -0.00 µg/L AsureQuality Method (LC-MS/MS) NEFOSA* -0.00 µg/L AsureQuality Method (LC-MS/MS) NEFOSA* -0.10 µg/L AsureQuality Method (LC-MS/MS) NEFOSA* -0.10 µg/L AsureQuality Method (LC-MS/MS)	PFDS *	<0.050		AsureQuality Method (LC-MS/MS)
PFPAA * 0.35 µg/L AsureQuality Method (LC-MS/MS) PFHAA * 0.34 µg/L AsureQuality Method (LC-MS/MS) PFHAA * 0.36 µg/L AsureQuality Method (LC-MS/MS) PFOA * 0.67 µg/L AsureQuality Method (LC-MS/MS) PFNA * 0.091 µg/L AsureQuality Method (LC-MS/MS) PFDAA * <0.050	Perfluoroalkylcarboxylic acids			
PFHAA* 0.34 µg/L AsureQuality Method (LC-MS/MS) PFHAA* 0.38 µg/L AsureQuality Method (LC-MS/MS) PFOA* 0.67 µg/L AsureQuality Method (LC-MS/MS) PFNA* 0.0991 µg/L AsureQuality Method (LC-MS/MS) PFDA* <0.050		<0.10	μg/L	AsureQuality Method (LC-MS/MS)
PFHpA * 0.36	PFPeA *	0.35	μg/L	AsureQuality Method (LC-MS/MS)
PFOA* 0.67 µg/L AsureQuality Method (LC-MS/MS) PFNA* 0.081 µg/L AsureQuality Method (LC-MS/MS) PFDA* 0.050 µg/L AsureQuality Method (LC-MS/MS) PFUADA* 0.050 µg/L AsureQuality Method (LC-MS/MS) PFDODA* 0.10 µg/L AsureQuality Method (LC-MS/MS) PFTDA* <1.0	PFHxA *	0.34	μg/L	AsureQuality Method (LC-MS/MS)
PFNA * 0.091 µyl. AsureQuality Method (LC-MS/MS) PFDA * <0.050	PFHpA *	0.36	μg/L	AsureQuality Method (LC-MS/MS)
PFDA* <0.050 µyL AsureQuality Method (LC-MS/MS) PFUNDA* <0.050	PFOA *	0.67	μg/L	AsureQuality Method (LC-MS/MS)
PFUNDA* <0.050 μg/L AsureQuality Method (LC-MS/MS) PFDDDA* <0.10	PFNA *	0.091	μg/L	AsureQuality Method (LC-MS/MS)
PFDDDA* <0.10 µg/L AsureQuality Method (LC-MS/MS) PFTDA* <1.0	PFDA *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PFTrDA* <1.0 μg/L AsureQuality Method (LC-MS/MS) PFTeDA* <1.0 μg/L AsureQuality Method (LC-MS/MS) Perturocotanesulftonamides PFOSA* <0.050 μg/L AsureQuality Method (LC-MS/MS) NEEFOSAM* <0.10	PFUnDA *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PFTeDA* <1.0 µg/L AsureQuality Method (LC-Ms/Ms) Perfluorocotanesulfonamides FOSA* <0.050 µg/L AsureQuality Method (LC-Ms/Ms) NEIFOSA-M* <0.10 µg/L AsureQuality Method (LC-Ms/Ms) NMeFOSAM* <0.10 µg/L AsureQuality Method (LC-Ms/Ms) Perfluoroctanesulfonamidoacetic acids Perfluoroctanesulfonamidoacetic acids NEIFOSAA* <0.10 µg/L AsureQuality Method (LC-Ms/Ms) Perfluoroctanesulfonamidoathanois V Perfluoroctanesulfonamidoathanois NEIFOSE-M* <0.10 µg/L AsureQuality Method (LC-Ms/Ms) NeIFOSE-M* <0.10 µg/L AsureQuality Method (LC-Ms/Ms) NeIFOSE-M* <0.10 µg/L AsureQuality Method (LC-Ms/Ms) Telomere Sulfonic acids V V AsureQuality Method (LC-Ms/Ms) 4:2 FTS* <0.10 µg/L AsureQuality Method (LC-Ms/Ms) 8:2 FTS* <0.64 µg/L AsureQuality Method (LC-Ms/Ms) 8:2 FTS* <0.5 % AsureQuality Method (LC-Ms/Ms) M3PFBA* <105	PFDoDA *	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
Perfluoroctanesulfonamides A sure Quality Method (LC-MS/MS) NEIFOSA-M* <0.00	PFTrDA *	<1.0	μg/L	AsureQuality Method (LC-MS/MS)
PFOSA* <0.050 µg/L AsureQuality Method (LC-MS/MS) NEIFOSA-M* <0.10	PFTeDA *	<1.0	μg/L	AsureQuality Method (LC-MS/MS)
NEIFOSA-M* <0.10 µg/L AsureQuality Method (LC-MS/MS) NMeFOSA-M* <0.10 µg/L AsureQuality Method (LC-MS/MS) Perfluoroctanesulfonamidoacetic acids NEIFOSAA* <0.10 µg/L AsureQuality Method (LC-MS/MS) NMeFOSAA* <0.10 µg/L AsureQuality Method (LC-MS/MS) Perfluoroctanesulfonamidoethanols NEIFOSE-M* <0.10 µg/L AsureQuality Method (LC-MS/MS) NMeFOSE-M* <0.10 µg/L AsureQuality Method (LC-MS/MS) Telomere Sulfonic acids 4:2 FTS * <0.10 µg/L AsureQuality Method (LC-MS/MS) 6:2 FTS * <0.24 µg/L AsureQuality Method (LC-MS/MS) 8:2 FTS * <0.64 µg/L AsureQuality Method (LC-MS/MS) M3PFBS * <0.5 % AsureQuality Method (LC-MS/MS) M3PFHx * <0.7 % AsureQuality Method (LC-MS/MS) M4PFBA * <0.7 % AsureQuality Method (LC-MS/MS) M5PFPeA * <0.7 % AsureQuality Method (LC-MS/MS) M5PFPEA *	Perfluorooctanesulfonamides			
NMeFOSA-M * <0.10 µg/L AsureQuality Method (LC-MS/MS) Perfluoroctanesulfonamidoacetic acids Value of the perfluoroctanesulfonamidoacetic acids NEIFOSAA * <0.10 µg/L AsureQuality Method (LC-MS/MS) NMeFOSAA * <0.10 µg/L AsureQuality Method (LC-MS/MS) Perfluoroctanesulfonamidoethanois Value of the perfluoroctanesulfonamidoethanois Value of the perfluoroctanesulfonamidoethanois NMeFOSE-M * <0.10 µg/L AsureQuality Method (LC-MS/MS) NMeFOSE-M * <0.10 µg/L AsureQuality Method (LC-MS/MS) Telomere Sulfonic acids Value of the perfluoroctanesulfonamidoethanois Value of the perfluoroctanesulfonamidoethanois 4:2 FTS * <0.10 µg/L AsureQuality Method (LC-MS/MS) 8:2 FTS * <0.24 µg/L AsureQuality Method (LC-MS/MS) 8:2 FTS * <0.64 µg/L AsureQuality Method (LC-MS/MS) M3PFBS * <105 % AsureQuality Method (LC-MS/MS) M3PFHS * <107 % AsureQuality Method (LC-MS/MS) M4PFBA * <107 % AsureQuality Method (LC-MS/MS)	PFOSA*	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamidoacetic acids NEIFOSAA* <0.10	NEtFOSA-M *	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
NEIFOSAA* <0.10	NMeFOSA-M *	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSAA* <0.10 μg/L AsureQuality Method (LC-MS/MS) Perfluoroctanesulfonamidoethanois Verifluoroctanesulfonamidoethanois NEtFOSE-M* <0.10 μg/L AsureQuality Method (LC-MS/MS) NMeFOSE-M* <0.10 μg/L AsureQuality Method (LC-MS/MS) Telomere Sulfonic acids Verifluore Sulfonic acids AsureQuality Method (LC-MS/MS) 6:2 FTS* 0.24 μg/L AsureQuality Method (LC-MS/MS) 8:2 FTS* 0.64 μg/L AsureQuality Method (LC-MS/MS) Internal Standards M3PFBS* 105 % AsureQuality Method (LC-MS/MS) M3PFBS* 107 % AsureQuality Method (LC-MS/MS) M8PFOS* 110 % AsureQuality Method (LC-MS/MS) M4PFBA* 107 % AsureQuality Method (LC-MS/MS) M5PFPAA* 104 % AsureQuality Method (LC-MS/MS) M8PFOA* 103 % AsureQuality Method (LC-MS/MS) M8PFOA* 103 % AsureQuality Method (LC-MS/MS) M8PFOA* 103 % AsureQuality Method (LC-MS/MS)	Perfluorooctanesulfonamidoacetic acids			
Perfluoroctanesulfonamidoethanois NEIFOSE-M* <0.10	NEtFOSAA *	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
NEtFOSE-M* <0.10 µg/L AsureQuality Method (LC-MS/MS) NMeFOSE-M* <0.10 µg/L AsureQuality Method (LC-MS/MS) Telomere Sulfonic acids 4:2 FTS* <0.10	NMeFOSAA *	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSE-M* < 0.10 μg/L AsureQuality Method (LC-MS/MS) Telomere Sulfonic acids <td>Perfluorooctanesulfonamidoethanols</td> <td></td> <td></td> <td></td>	Perfluorooctanesulfonamidoethanols			
Telomere Sulfonic acids 4:2 FTS * <0.10	NEtFOSE-M *	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
4:2 FTS * <0.10	NMeFOSE-M *	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
6:2 FTS * 0.24 μg/L AsureQuality Method (LC-MS/MS) 8:2 FTS * 0.64 μg/L AsureQuality Method (LC-MS/MS) Internal Standards M3PFBS * 105 % AsureQuality Method (LC-MS/MS) M3PFHxS * 107 % AsureQuality Method (LC-MS/MS) M8PFOS * 110 % AsureQuality Method (LC-MS/MS) M4PFBA * 107 % AsureQuality Method (LC-MS/MS) M5PFHxA * 104 % AsureQuality Method (LC-MS/MS) MPFHpA * 107 % AsureQuality Method (LC-MS/MS) M8PFOA * 103 % AsureQuality Method (LC-MS/MS) M9PFNA * 121 % AsureQuality Method (LC-MS/MS) M6PFDA * 110 % AsureQuality Method (LC-MS/MS)				
8:2 FTS * 0.64 µg/L AsureQuality Method (LC-MS/MS) Internal Standards M3PFBS * 105 % AsureQuality Method (LC-MS/MS) M3PFHx8 * 107 % AsureQuality Method (LC-MS/MS) M8PFOS * 110 % AsureQuality Method (LC-MS/MS) M4PFBA * 107 % AsureQuality Method (LC-MS/MS) M5PFHxA * 104 % AsureQuality Method (LC-MS/MS) MPFHpA * 107 % AsureQuality Method (LC-MS/MS) M8PFOA * 103 % AsureQuality Method (LC-MS/MS) M9PFNA * 121 % AsureQuality Method (LC-MS/MS) M6PFDA * 110 % AsureQuality Method (LC-MS/MS)				· · · · · · · · · · · · · · · · · · ·
Internal Standards M3PFBS * 105 % AsureQuality Method (LC-MS/MS) M3PFHXS * 107 % AsureQuality Method (LC-MS/MS) M8PFOS * 110 % AsureQuality Method (LC-MS/MS) M4PFBA * 107 % AsureQuality Method (LC-MS/MS) M5PFHXA * 104 % AsureQuality Method (LC-MS/MS) MPFHPA * 107 % AsureQuality Method (LC-MS/MS) M8PFOA * 103 % AsureQuality Method (LC-MS/MS) M9PFNA * 121 % AsureQuality Method (LC-MS/MS) M6PFDA * 110 % AsureQuality Method (LC-MS/MS)				· · · · · · · · · · · · · · · · · · ·
M3PFBS * 105 % AsureQuality Method (LC-MS/MS) M3PFHxS * 107 % AsureQuality Method (LC-MS/MS) M8PFOS * 110 % AsureQuality Method (LC-MS/MS) M4PFBA * 107 % AsureQuality Method (LC-MS/MS) M5PFHxA * 104 % AsureQuality Method (LC-MS/MS) MPFHpA * 107 % AsureQuality Method (LC-MS/MS) M8PFOA * 103 % AsureQuality Method (LC-MS/MS) M9PFNA * 121 % AsureQuality Method (LC-MS/MS) M6PFDA * 110 % AsureQuality Method (LC-MS/MS)		0.64	μg/L	AsureQuality Method (LC-MS/MS)
M3PFHxS* 107 % AsureQuality Method (LC-MS/MS) M8PFOS* 110 % AsureQuality Method (LC-MS/MS) M4PFBA* 107 % AsureQuality Method (LC-MS/MS) M5PFPeA* 104 % AsureQuality Method (LC-MS/MS) M5PFHxA* 104 % AsureQuality Method (LC-MS/MS) MPFHpA* 107 % AsureQuality Method (LC-MS/MS) M8PFOA* 103 % AsureQuality Method (LC-MS/MS) M9PFNA* 121 % AsureQuality Method (LC-MS/MS) M6PFDA* 110 % AsureQuality Method (LC-MS/MS)				
M8PFOS * 110 % AsureQuality Method (LC-MS/MS) M4PFBA * 107 % AsureQuality Method (LC-MS/MS) M5PFPeA * 104 % AsureQuality Method (LC-MS/MS) M5PFHxA * 104 % AsureQuality Method (LC-MS/MS) MPFHpA * 107 % AsureQuality Method (LC-MS/MS) M8PFOA * 103 % AsureQuality Method (LC-MS/MS) M9PFNA * 121 % AsureQuality Method (LC-MS/MS) M6PFDA * 110 % AsureQuality Method (LC-MS/MS)				, , ,
M4PFBA * 107 % AsureQuality Method (LC-MS/MS) M5PFPeA * 104 % AsureQuality Method (LC-MS/MS) M5PFHxA * 104 % AsureQuality Method (LC-MS/MS) MPFHpA * 107 % AsureQuality Method (LC-MS/MS) M8PFOA * 103 % AsureQuality Method (LC-MS/MS) M9PFNA * 121 % AsureQuality Method (LC-MS/MS) M6PFDA * 110 % AsureQuality Method (LC-MS/MS)				, , , , , , , , , , , , , , , , , , ,
M5PFPeA* 104 % AsureQuality Method (LC-MS/MS) M5PFHxA* 104 % AsureQuality Method (LC-MS/MS) MPFHpA* 107 % AsureQuality Method (LC-MS/MS) M8PFOA* 103 % AsureQuality Method (LC-MS/MS) M9PFNA* 121 % AsureQuality Method (LC-MS/MS) M6PFDA* 110 % AsureQuality Method (LC-MS/MS)				, ,
M5PFHxA * 104 % AsureQuality Method (LC-MS/MS) MPFHpA * 107 % AsureQuality Method (LC-MS/MS) M8PFOA * 103 % AsureQuality Method (LC-MS/MS) M9PFNA * 121 % AsureQuality Method (LC-MS/MS) M6PFDA * 110 % AsureQuality Method (LC-MS/MS)				· , , ,
MPFHpA * 107 % AsureQuality Method (LC-MS/MS) M8PFOA * 103 % AsureQuality Method (LC-MS/MS) M9PFNA * 121 % AsureQuality Method (LC-MS/MS) M6PFDA * 110 % AsureQuality Method (LC-MS/MS)				
M8PFOA * 103 % AsureQuality Method (LC-MS/MS) M9PFNA * 121 % AsureQuality Method (LC-MS/MS) M6PFDA * 110 % AsureQuality Method (LC-MS/MS)				· , , ,
M9PFNA * 121 % AsureQuality Method (LC-MS/MS) M6PFDA * 110 % AsureQuality Method (LC-MS/MS)	<u> </u>			
M6PFDA * 110 % AsureQuality Method (LC-MS/MS)				
M7PFUnDA * 102 % AsureQuality Method (LC-MS/MS)				AsureQuality Method (LC-MS/MS)
	M7PFUnDA *	102	%	AsureQuality Method (LC-MS/MS)

Test	Result	Unit	Method Reference
MPFDoDA *	110	%	AsureQuality Method (LC-MS/MS)
MPFTeDA *	135	%	AsureQuality Method (LC-MS/MS)
MPFOSA *	109	%	AsureQuality Method (LC-MS/MS)
DNEtFOSA *	102	%	AsureQuality Method (LC-MS/MS)
DNMeFOSA *	100	%	AsureQuality Method (LC-MS/MS)
DNEtFOSAA *	103	%	AsureQuality Method (LC-MS/MS)
DNMeFOSAA *	111	%	AsureQuality Method (LC-MS/MS)
DNEtFOSE *	108	%	AsureQuality Method (LC-MS/MS)
DNMeFOSE *	111	%	AsureQuality Method (LC-MS/MS)
M4:2FTS *	106	%	AsureQuality Method (LC-MS/MS)
M6:2FTS *	116	%	AsureQuality Method (LC-MS/MS)
M8:2FTS *	104	%	AsureQuality Method (LC-MS/MS)
Sustomer Sample Name: GW37			AsureQuality ID: 18-213689-5
ample Description: Groundwater			Asulequality ID. 10-213009-
sample Condition: Acceptable	Sampled Date: 21-Aug-2018		
Test	Result	Unit	Method Reference
		Oilit	metrou reference
oly- and Perfluorinated Alkyl Substances (F	PFAS) in Water		
Perfluoroalkylsulfonic acids PFPrS	<0.0010	ua/l	AcuraQuality Mathed (LC MS/MS)
PFBS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFPeS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
		μg/L	AsureQuality Method (LC-MS/MS)
di-PFHxS (1)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
mono-PFHxS (1)	<0.0010	μg/L "	AsureQuality Method (LC-MS/MS)
L-PFHxS (1)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Total PFHxS (3)	<0.0010	μg/L "	AsureQuality Method (LC-MS/MS)
PFHpS	<0.0010	μg/L 	AsureQuality Method (LC-MS/MS)
di-PFOS (5)	<0.0010	μg/L "	AsureQuality Method (LC-MS/MS)
mono-PFOS (5)	<0.0010	μg/L 	AsureQuality Method (LC-MS/MS)
L-PFOS (5)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Total PFOS (7)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Sum PFHxS+PFOS (1)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFNS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFDS	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
Perfluoroalkylcarboxylic acids			
PFBA	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
PFPeA	0.0029	μg/L	AsureQuality Method (LC-MS/MS)
PFHxA	0.0038	μg/L	AsureQuality Method (LC-MS/MS)
PFHpA	0.0016	μg/L	AsureQuality Method (LC-MS/MS)
PFOA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFNA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFDA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFUnDA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFDoDA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFTrDA	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
PFTeDA	NR	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamides			
	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFOSA	<0.0010	ру/ С	Address and Method (Ed Mo/Mo)

Test	Result	Unit	Method Reference
NMeFOSA-M	NR	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamidoacetic acids			
NEtFOSAA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSAA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamidoethanols			
NEtFOSE-M	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSE-M	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
Telomere Sulfonic acids			
4:2 FTS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
6:2 FTS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
8:2 FTS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Internal Standards			
M3PFBS	92	%	AsureQuality Method (LC-MS/MS)
M3PFHxS	98	%	AsureQuality Method (LC-MS/MS)
M8PFOS	116	%	AsureQuality Method (LC-MS/MS)
M4PFBA	89	%	AsureQuality Method (LC-MS/MS)
M5PFPeA	93	%	AsureQuality Method (LC-MS/MS)
M5PFHxA	91	%	AsureQuality Method (LC-MS/MS)
MPFHpA	92	%	AsureQuality Method (LC-MS/MS)
M8PFOA	94	%	AsureQuality Method (LC-MS/MS)
M9PFNA	95	%	AsureQuality Method (LC-MS/MS)
M6PFDA	115	%	AsureQuality Method (LC-MS/MS)
M7PFUnDA	158 (R)	%	AsureQuality Method (LC-MS/MS)
MPFDoDA	185 (R)	%	AsureQuality Method (LC-MS/MS)
MPFTeDA	NR	%	AsureQuality Method (LC-MS/MS)
MPFOSA	95	%	AsureQuality Method (LC-MS/MS)
DNEtFOSA	NR	%	AsureQuality Method (LC-MS/MS)
DNMeFOSA	NR	%	AsureQuality Method (LC-MS/MS)
DNEtFOSAA	132	%	AsureQuality Method (LC-MS/MS)
DNMeFOSAA	123	%	AsureQuality Method (LC-MS/MS)
DNEtFOSE	72	%	AsureQuality Method (LC-MS/MS)
DNMeFOSE	81	%	AsureQuality Method (LC-MS/MS)
M4:2FTS	92	%	AsureQuality Method (LC-MS/MS)
M6:2FTS	75	%	AsureQuality Method (LC-MS/MS)
M8:2FTS	107	%	AsureQuality Method (LC-MS/MS)
R = Recovery outside method limits			
Customer Sample Name: Control01			AsureQuality ID: 18-213689-6
Sample Description: Groundwater			
Sample Condition: Acceptable	Sampled Date: 21-Aug-2018		
Test	Result	Unit	Method Reference
Poly- and Perfluorinated Alkyl Substances (PF	AS) in Water		
Perfluoroalkylsulfonic acids	,		
PFPrS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFBS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFPeS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
di-PFHxS (1)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
mono-PFHxS (1)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
L-PFHxS (1)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Total PFHxS (3)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
	-5.0010	r9′ -	. Iouroquamy monior (EO MO/MO)

Test	Result	Unit	Method Reference
PFHpS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
di-PFOS (5)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
mono-PFOS (5)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
L-PFOS (5)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Total PFOS (7)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Sum PFHxS+PFOS (1)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFNS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFDS	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
Perfluoroalkylcarboxylic acids			
PFBA	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
PFPeA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFHxA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFHpA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFOA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFNA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFDA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFUnDA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFDoDA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFTrDA	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
PFTeDA	NR	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamides	- THI	P9/ L	/ loar equality inclined (Le inc/inc)
PFOSA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
NEtFOSA-M	NR	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSA-M	NR	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamidoacetic acids		10	, ,
NEtFOSAA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSAA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamidoethanols			
NEtFOSE-M	NR	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSE-M	NR	μg/L	AsureQuality Method (LC-MS/MS)
Telomere Sulfonic acids			
4:2 FTS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
6:2 FTS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
8:2 FTS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Internal Standards			
M3PFBS	98	%	AsureQuality Method (LC-MS/MS)
M3PFHxS	92	%	AsureQuality Method (LC-MS/MS)
M8PFOS	77	%	AsureQuality Method (LC-MS/MS)
M4PFBA	90	%	AsureQuality Method (LC-MS/MS)
M5PFPeA	101	%	AsureQuality Method (LC-MS/MS)
M5PFHxA	99	%	AsureQuality Method (LC-MS/MS)
MPFHpA	94	%	AsureQuality Method (LC-MS/MS)
M8PFOA	91	%	AsureQuality Method (LC-MS/MS)
M9PFNA	86	%	AsureQuality Method (LC-MS/MS)
M6PFDA	80	%	AsureQuality Method (LC-MS/MS)
M7PFUnDA	71	%	AsureQuality Method (LC-MS/MS)
MPFDoDA	68	%	AsureQuality Method (LC-MS/MS)
MPFTeDA	NR	%	AsureQuality Method (LC-MS/MS)
MPFOSA	59	% %	AsureQuality Method (LC-MS/MS)
IVII I JUA	Ja	/0	Asure Quality Intelliou (LO-INIS/INIS)

Test	Result	Unit	Method Reference
DNEtFOSA	NR	%	AsureQuality Method (LC-MS/MS)
DNMeFOSA	NR	%	AsureQuality Method (LC-MS/MS)
DNEtFOSAA	56	%	AsureQuality Method (LC-MS/MS)
DNMeFOSAA	61	%	AsureQuality Method (LC-MS/MS)
DNEtFOSE	NR	%	AsureQuality Method (LC-MS/MS)
DNMeFOSE	NR	%	AsureQuality Method (LC-MS/MS)
M4:2FTS	89	%	AsureQuality Method (LC-MS/MS)
M6:2FTS	75	%	AsureQuality Method (LC-MS/MS)
M8:2FTS	83	%	AsureQuality Method (LC-MS/MS)

QC Results

Blank

Relates to sample(s) 18-213689-1, 18-213689-2, 18-213689-3, 18-213689-5, 18-213689-6

est	Result	Unit	Method Reference
oly- and Perfluorinated Alkyl Substances (PFAS) in Wate	er .		
Perfluoroalkylsulfonic acids			
PFPrS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFBS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFPeS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
di-PFHxS (1)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
mono-PFHxS (1)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
L-PFHxS (1)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Total PFHxS (3)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFHpS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
di-PFOS (5)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
mono-PFOS (5)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
L-PFOS (5)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Total PFOS (7)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Sum PFHxS+PFOS (1)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFNS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFDS	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
Perfluoroalkylcarboxylic acids			
PFBA	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
PFPeA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFHxA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFHpA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFOA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFNA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFDA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFUnDA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFDoDA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFTrDA	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
PFTeDA	NR	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamides			
PFOSA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
NEtFOSA-M	NR	μg/L	AsureQuality Method (LC-MS/MS)

est	Result	Unit	Method Reference
NMeFOSA-M	NR	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamidoacetic acids			
NEtFOSAA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSAA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamidoethanols			
NEtFOSE-M	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSE-M	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
Telomere Sulfonic acids			
4:2 FTS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
6:2 FTS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
8:2 FTS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Internal Standards			
M3PFBS	89	%	AsureQuality Method (LC-MS/MS)
M3PFHxS	92	%	AsureQuality Method (LC-MS/MS)
M8PFOS	90	%	AsureQuality Method (LC-MS/MS)
M4PFBA	88	%	AsureQuality Method (LC-MS/MS)
M5PFPeA	87	%	AsureQuality Method (LC-MS/MS)
M5PFHxA	89	%	AsureQuality Method (LC-MS/MS)
MPFHpA	89	%	AsureQuality Method (LC-MS/MS)
M8PFOA	89	%	AsureQuality Method (LC-MS/MS)
M9PFNA	86	%	AsureQuality Method (LC-MS/MS)
M6PFDA	92	%	AsureQuality Method (LC-MS/MS)
M7PFUnDA	138	%	AsureQuality Method (LC-MS/MS)
MPFDoDA	285 (R)	%	AsureQuality Method (LC-MS/MS)
MPFTeDA	NR	%	AsureQuality Method (LC-MS/MS)
MPFOSA	95	%	AsureQuality Method (LC-MS/MS)
DNEtFOSA	NR	%	AsureQuality Method (LC-MS/MS)
DNMeFOSA	NR	%	AsureQuality Method (LC-MS/MS)
DNEtFOSAA	130	%	AsureQuality Method (LC-MS/MS)
DNMeFOSAA	104	%	AsureQuality Method (LC-MS/MS)
DNEtFOSE	235 (R)	%	AsureQuality Method (LC-MS/MS)
DNMeFOSE	150	%	AsureQuality Method (LC-MS/MS)
M4:2FTS	82	%	AsureQuality Method (LC-MS/MS)
M6:2FTS	84	%	AsureQuality Method (LC-MS/MS)
M8:2FTS	73	%	AsureQuality Method (LC-MS/MS)
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R = Recovery outside method limits

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Relates to sample(s) 18-213689-4

est	Result	Unit	Method Reference	
oly- and Perfluorinated Alkyl Substances (PFAS)	in Water - High Level			
Perfluoroalkylsulfonic acids				
PFPrS	<0.10	μg/L	AsureQuality Method (LC-MS/MS)	
PFBS	<0.10	μg/L	AsureQuality Method (LC-MS/MS)	
PFPeS	<0.10	μg/L	AsureQuality Method (LC-MS/MS)	
di-PFHxS (1)	<0.10	μg/L	AsureQuality Method (LC-MS/MS)	
mono-PFHxS (1)	<0.10	μg/L	AsureQuality Method (LC-MS/MS)	

Test	Result	Unit	Method Reference
L-PFHxS (1)	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
Total PFHxS (3)	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
PFHpS	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
di-PFOS (5)	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
mono-PFOS (5)	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
L-PFOS (5)	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
Total PFOS (7)	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
Sum PFHxS+PFOS (1)	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
PFNS	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
PFDS	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
Perfluoroalkylcarboxylic acids			
PFBA	<0.20	μg/L	AsureQuality Method (LC-MS/MS)
PFPeA	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
PFHxA	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
PFHpA	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
PFOA	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
PFNA	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
PFDA	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
PFUnDA	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
PFDoDA	<1.0	μg/L	AsureQuality Method (LC-MS/MS)
PFTrDA	<5.0	μg/L	AsureQuality Method (LC-MS/MS)
PFTeDA	<5.0	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamides			
PFOSA	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
NEtFOSA-M	<0.20	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSA-M	<1.0	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamidoacetic acids			
NEtFOSAA	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSAA	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamidoethanols			
NEtFOSE-M	<1.0	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSE-M	<1.0	μg/L	AsureQuality Method (LC-MS/MS)
Telomere Sulfonic acids			
4:2 FTS	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
6:2 FTS	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
8:2 FTS	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
Internal Standards			
M3PFBS	103	%	AsureQuality Method (LC-MS/MS)
M3PFHxS	105	%	AsureQuality Method (LC-MS/MS)
M8PFOS	107	%	AsureQuality Method (LC-MS/MS)
M4PFBA	104	%	AsureQuality Method (LC-MS/MS)
M5PFPeA	105	%	AsureQuality Method (LC-MS/MS)
M5PFHxA	100	%	AsureQuality Method (LC-MS/MS)
MPFHpA	103	%	AsureQuality Method (LC-MS/MS)
M8PFOA	101	%	AsureQuality Method (LC-MS/MS)
M9PFNA	108	%	AsureQuality Method (LC-MS/MS)

Test	Result	Unit	Method Reference
M6PFDA	104	%	AsureQuality Method (LC-MS/MS)
M7PFUnDA	111	%	AsureQuality Method (LC-MS/MS)
MPFDoDA	104	%	AsureQuality Method (LC-MS/MS)
MPFTeDA	51	%	AsureQuality Method (LC-MS/MS)
MPFOSA	108	%	AsureQuality Method (LC-MS/MS)
DNEtFOSA	104	%	AsureQuality Method (LC-MS/MS)
DNMeFOSA	108	%	AsureQuality Method (LC-MS/MS)
DNEtFOSAA	102	%	AsureQuality Method (LC-MS/MS)
DNMeFOSAA	98	%	AsureQuality Method (LC-MS/MS)
DNEtFOSE	103	%	AsureQuality Method (LC-MS/MS)
DNMeFOSE	106	%	AsureQuality Method (LC-MS/MS)
M4:2FTS	102	%	AsureQuality Method (LC-MS/MS)
M6:2FTS	106	%	AsureQuality Method (LC-MS/MS)
M8:2FTS	107	%	AsureQuality Method (LC-MS/MS)

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Relates to sample(s) 18-213689-4

est	Result	Unit	Method Reference
ly- and Perfluorinated Alkyl Substances (PFAS)	in Water		
Perfluoroalkylsulfonic acids			
PFPrS	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PFBS	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PFPeS	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
di-PFHxS (1)	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
mono-PFHxS (1)	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
L-PFHxS (1)	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
Total PFHxS (3)	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
PFHpS	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
di-PFOS (5)	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
mono-PFOS (5)	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
L-PFOS (5)	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
Total PFOS (7)	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
Sum PFHxS+PFOS (1)	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
PFNS	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PFDS	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
Perfluoroalkylcarboxylic acids			
PFBA	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
PFPeA	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
PFHxA	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PFHpA	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PFOA	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
PFNA	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PFDA	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PFUnDA	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PFDoDA	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
PFTrDA	<1.0	μg/L	AsureQuality Method (LC-MS/MS)
PFTeDA	<1.0	μg/L	AsureQuality Method (LC-MS/MS)

Perfluorooctanesulfonamides			
PFOSA	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
NEtFOSA-M	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSA-M	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamidoacetic acids			
NEtFOSAA	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSAA	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamidoethanols			
NEtFOSE-M	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSE-M	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
Telomere Sulfonic acids			
4:2 FTS	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
6:2 FTS	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
8:2 FTS	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
Internal Standards			
M3PFBS	107	%	AsureQuality Method (LC-MS/MS)
M3PFHxS	107	%	AsureQuality Method (LC-MS/MS)
M8PFOS	110	%	AsureQuality Method (LC-MS/MS)
M4PFBA	109	%	AsureQuality Method (LC-MS/MS)
M5PFPeA	107	%	AsureQuality Method (LC-MS/MS)
M5PFHxA	104	%	AsureQuality Method (LC-MS/MS)
MPFHpA	108	%	AsureQuality Method (LC-MS/MS)
M8PFOA	100	%	AsureQuality Method (LC-MS/MS)
M9PFNA	114	%	AsureQuality Method (LC-MS/MS)
M6PFDA	110	%	AsureQuality Method (LC-MS/MS)
M7PFUnDA	103	%	AsureQuality Method (LC-MS/MS)
MPFDoDA	100	%	AsureQuality Method (LC-MS/MS)
MPFTeDA	39	%	AsureQuality Method (LC-MS/MS)
MPFOSA	109	%	AsureQuality Method (LC-MS/MS)
DNEtFOSA	97	%	AsureQuality Method (LC-MS/MS)
DNMeFOSA	95	%	AsureQuality Method (LC-MS/MS)
DNEtFOSAA	106	%	AsureQuality Method (LC-MS/MS)
DNMeFOSAA	110	%	AsureQuality Method (LC-MS/MS)
DNEtFOSE	104	%	AsureQuality Method (LC-MS/MS)
DNMeFOSE	102	%	AsureQuality Method (LC-MS/MS)
M4:2FTS	108	%	AsureQuality Method (LC-MS/MS)
M6:2FTS	111	%	AsureQuality Method (LC-MS/MS)
M8:2FTS	103	%	AsureQuality Method (LC-MS/MS)

Analysis Summary

Wellington Laboratory

Wollington Euroratory					
Analysis	Method	Accreditation	Authorised by		
Poly- and Perfluorinated Alkyl Substances (PFAS) in Water					
DX-PFCS01, 03-SUITE_B	AsureQuality Method (LC-MS/MS)	IANZ	Cameron Evans		

AsureQuality Reference: 18-213689 Report Issued: 18-Sep-2018

Analysis Method Accreditation Authorised by

di-PFHxS (1) = Concentration determined using a branched di-PFHxS isomer standard (399>80 transition)

mono-PFHxS (1) = Concentration determined using a branched mono-PFHxS isomer standard (399>80 transition)

L-PFHxS (1) = Concentration determined using the linear PFHxS isomer standard (399>80 transition)

Total PFHxS (3) = The numerical sum of di-PFHxS (1), mono-PFHxS (1), and L-PFHxS (1)

di-PFOS (5) = Concentration determined using a branched di-PFOS isomer standard (499>80 transition)

mono-PFOS (5) = Concentration determined using a branched mono-PFOS isomer standard (499>80 transition)

L-PFOS (5) = Concentration determined using the linear PFOS isomer standard (499>230 transition)

Total PFOS (7) = The numerical sum of di-PFOS (5), mono-PFOS (5), and L-PFOS (5)

Sum PFHxS+PFOS (1) = The numerical sum of Total PFHxS (3) and Total PFOS (7)

For all Totals, where a component is detected below the LOR, the value of zero is used in the calculation of the sum. The result represents the lower-bound concentration present in

Reported results are corrected for internal standard recovery

Any tests marked with * are not accredited for specific matrices or analytes.

Results that are prefixed with '<' indicate the lowest level at which the analyte can be reported, and that in this case the analyte was not observed above this limit.

NR = Not Reportable

Cameron Evans

Scientist

Accreditation



AsureQuality Reference: 18-213689 Report Issued: 18-Sep-2018

Appendix

Analyte LOR Summary

Analyte LOR (µg/L)

Listing applies to samples: 18-213689-4

Perfluoroalkylsulfonic acids

PFPrS*	0.0010
PFBS*	0.0010
PFPeS*	0.0010
di-PFHxS (1)*	0.0010
mono-PFHxS (1)*	0.0010
L-PFHxS (1)*	0.0010
Total PFHxS (3)*	0.0010
PFHpS*	0.0010
di-PFOS (5)*	0.0010
mono-PFOS (5)*	0.0010
L-PFOS (5)*	0.0010
Total PFOS (7)*	0.0010
Sum PFHxS+PFOS (1)*	0.0010
PFNS*	0.0010
PFDS*	0.0010

Perfluoroalkylcarboxylic acids

PFBA* 0.0010 PFPeA* 0.0010 PFHxA* 0.0010 PFHpA* 0.0010 PFOA* 0.0010 PFNA* 0.0010 PFDA* 0.0010 PFUnDA* 0.0010 PFDoDA* 0.0010 PFTrDA* 0.0010 PFTeDA* 0.0010

Perfluorooctanesulfonamides

 PFOSA*
 0.0010

 NEtFOSA-M*
 0.0010

 NMeFOSA-M*
 0.0010

Perfluorooctanesulfonamidoacetic acids

 NEtFOSAA*
 0.0010

 NMeFOSAA*
 0.0010

Perfluorooctanesulfonamidoethanols

NEtFOSE-M* 0.0010 NMeFOSE-M* 0.0010

Telomere Sulfonic acids

4:2 FTS* 0.0010 6:2 FTS* 0.0010 8:2 FTS* 0.0010

Listing applies to samples: 18-213689-1, 18-213689-2, 18-213689-3, 18-213689-5, 18-213689-6

 PFPrS
 0.0010

 PFBS
 0.0010

 PFPeS
 0.0010

di-PFHxS (1)	0.0010
mono-PFHxS (1)	0.0010
L-PFHxS (1)	0.0010
Total PFHxS (3)	0.0010
PFHpS	0.0010
di-PFOS (5)	0.0010
mono-PFOS (5)	0.0010
L-PFOS (5)	0.0010
Total PFOS (7)	0.0010
Sum PFHxS+PFOS (1)	0.0010
PFNS	0.0010
PFDS	0.0010
Perfluoroalkylcarboxylic acids	
PFBA	0.0010
DED. A	0.0040

PFPeA 0.0010 PFHxA 0.0010 PFHpA 0.0010 PFOA 0.0010 PFNA 0.0010 PFDA 0.0010 PFUnDA 0.0010 PFDoDA NR PFTrDA NR

Perfluorooctanesulfonamides

PFTeDA

PFOSA NR
NEtFOSA-M NR
NMeFOSA-M NR

Perfluorooctanesulfonamidoacetic acids

 NEtFOSAA
 0.0010

 NMeFOSAA
 0.0010

Perfluorooctanesulfonamidoethanols

NEtFOSE-M NR NMeFOSE-M NR

Telomere Sulfonic acids

 4:2 FTS
 0.0010

 6:2 FTS
 0.0010

 8:2 FTS
 0.0010

Analyte Definitions

Poly- and Perfluorinated Alkyl Substances (PFAS) in Water - AsureQuality Method (LC-MS/MS)

NR

Analyte Full Name

Listing applies to samples: 18-213689-4

Perfluoroalkylsulfonic acids

PFPrS* Perfluoro-1-propanesulfonic acid
PFBS* Perfluoro-1-butanesulfonic acid
PFPeS* Perfluoro-1-pentanesulfonic acid

di-PFHxS (1)* Total Perfluorodimethylbutane sulfonic acids mono-PFHxS (1)* Total Perfluoromethylpentane sulfonic acids L-PFHxS (1)* Linear Perfluorohexanesulfonic acid PFHpS* Perfluoro-1-heptanesulfonic acid

di-PFOS (5)* Total Perfluorodimethylhexane sulfonic acids mono-PFOS (5)* Total Perfluoromethylheptane sulfonic acids

Analyte Full Name

L-PFOS (5)* Linear Perfluorooctanesulfonic acid
PFNS* Perfluoro-1-nonanesulfonic acid
PFDS* Perfluoro-1-decanesulfonic acid

Perfluoroalkylcarboxylic acids

PFBA* Perfluoro-n-butanoic acid PFPeA* Perfluoro-n-pentanoic acid PFHxA* Perfluoro-n-hexanoic acid PFHpA* Perfluoro-n-heptanoic acid PFOA* Perfluoro-n-octanoic acid PFNA* Perfluoro-n-nonanoic acid PFDA* Perfluoro-n-decanoic acid PFUnDA* Perfluoro-n-undecanoic acid PFDoDA* Perfluoro-n-dodecanoic acid PFTrDA* Perfluoro-n-tridecanoic acid PFTeDA* Perfluoro-n-tetradecanoic acid

Perfluorooctanesulfonamides

PFOSA* Perfluoro-1-octanesulfonamide

NEtFOSA-M* N-ethylperfluoro-1-octanesulfonamide

NMeFOSA-M* N-methylperfluoro-1-octanesulfonamide

Perfluorooctanesulfonamidoacetic acids

NEtFOSAA* N-ethylperfluoro-1-octanesulfonamidoacetic acid
NMeFOSAA* N-methylperfluoro-1-octanesulfonamidoacetic acid

Perfluorooctanesulfonamidoethanols

NEtFOSE-M*

2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol

NMeFOSE-M*

2-(N-methylperfluoro-1-octanesulfonamido)-ethanol

Telomere Sulfonic acids

4:2 FTS* 1H,1H,2H,2H-perfluoro-1-hexanesulfonic acid
6:2 FTS* 1H,1H,2H,2H-perfluoro-1-octanesulfonic acid
8:2 FTS* 1H,1H,2H,2H-perfluoro-1-decanesulfonic acid

Internal Standards

M9PFNA*

M3PFBS* Perfluoro-1-[2,3,4-13C3]butanesulfonic acid M3PFHxS* Perfluoro-1-[1,2,3-13C3]hexanesulfonic acid M8PFOS* Perfluoro-1-[13C8]octanesulfonic acid M4PFBA* Perfluoro-n-[1,2,3,4-13C4]butanoic acid M5PFPeA* Perfluoro-n-[1,2,3,4,5-13C5]pentanoic acid M5PFHxA* Perfluoro-n-[1,2,3,4,6-13C5]hexanoic acid MPFHpA* Perfluoro-n-[-1,2,3,4-13C4]heptanoic acid M8PFOA* Perfluoro-n-[13C8]octanoic acid

M6PFDA* Perfluoro-n-[1,2,3,4,5,6-13C6]decanoic acid
M7PFUnDA* Perfluoro-n-[1,2,3,4,5,6,7-13C7]undecanoic acid

Perfluoro-n-[13C9]nonanoic acid

MPFDoDA* Perfluoro-n-[1,2-13C2]dodecanoic acid MPFTeDA* Perfluoro-n-[1,2-13C2]tetradecanoic acid MPFOSA* Perfluoro-1-[13C8]octanesulfonamide DNEtFOSA* N-ethyl-D5-perfluoro-1-octanesulfonamide DNMeFOSA* N-methyl-D3-perfluoro-1-octanesulfonamide DNEtFOSAA* N-ethyl-D5-perfluoro-1-octanesulfonamidoacetic acid DNMeFOSAA* N-methyl-D3-perfluoro-1-octanesulfonamidoacetic acid DNFtFOSF* 2-(N-ethyl-D5-perfluoro-1-octanesulfonamido)ethan-D4-ol DNMeFOSE* 2-(N-methyl-D3-perfluoro-1-octanesulfonamido)ethan-D4-ol M4:2FTS* 1H,1H,2H,2H-perfluoro-1-[1,2-13C2]-hexane sulfonic acid M6:2FTS 1H,1H,2H,2H-perfluoro-1-[1,2-13C2]-octane sulfonic acid M8:2FTS* 1H,1H,2H,2H-perfluoro-1-[1,2-13C2]-decane sulfonic acid

AsureQuality Reference: 18-213689 Report Issued: 18-Sep-2018

Analyte Full Name

Listing applies to samples: 18-213689-1, 18-213689-2, 18-213689-3, 18-213689-5, 18-213689-6

Perfluoroalkylsulfonic acids

PFPrS Perfluoro-1-propanesulfonic acid
PFBS Perfluoro-1-butanesulfonic acid
PFPeS Perfluoro-1-pentanesulfonic acid

di-PFHxS (1)

Total Perfluorodimethylbutane sulfonic acids
mono-PFHxS (1)

Total Perfluoromethylpentane sulfonic acids
L-PFHxS (1)

Linear Perfluorohexanesulfonic acid

PFHpS

Perfluoro-1-heptanesulfonic acid

di-PFOS (5)

Total Perfluorodimethylhexane sulfonic acids
mono-PFOS (5)

Total Perfluoromethylheptane sulfonic acids
L-PFOS (5)

Linear Perfluoroctanesulfonic acid

PFNS

Perfluoro-1-nonanesulfonic acid

PFDS

Perfluoro-1-decanesulfonic acid

Perfluoroalkylcarboxylic acids

PFBA Perfluoro-n-butanoic acid PFPeA Perfluoro-n-pentanoic acid PFHxA Perfluoro-n-hexanoic acid PFHpA Perfluoro-n-heptanoic acid PFOA Perfluoro-n-octanoic acid PFNA Perfluoro-n-nonanoic acid PFDA Perfluoro-n-decanoic acid PFUnDA Perfluoro-n-undecanoic acid **PFDoDA** Perfluoro-n-dodecanoic acid PFTrDA Perfluoro-n-tridecanoic acid PFTeDA Perfluoro-n-tetradecanoic acid

Perfluorooctanesulfonamides

PFOSA Perfluoro-1-octanesulfonamide

NEtFOSA-M N-ethylperfluoro-1-octanesulfonamide

NMeFOSA-M N-methylperfluoro-1-octanesulfonamide

Perfluorooctanesulfonamidoacetic acids

 NEtFOSAA
 N-ethylperfluoro-1-octanesulfonamidoacetic acid

 NMeFOSAA
 N-methylperfluoro-1-octanesulfonamidoacetic acid

Perfluorooctanesulfonamidoethanols

NEtFOSE-M 2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol
NMeFOSE-M 2-(N-methylperfluoro-1-octanesulfonamido)-ethanol

Telomere Sulfonic acids

4:2 FTS 1H,1H,2H,2H-perfluoro-1-hexanesulfonic acid
6:2 FTS 1H,1H,2H,2H-perfluoro-1-octanesulfonic acid
8:2 FTS 1H,1H,2H,2H-perfluoro-1-decanesulfonic acid

Internal Standards

M3PFBS Perfluoro-1-[2,3,4-13C3]butanesulfonic acid M3PFHxS Perfluoro-1-[1,2,3-13C3]hexanesulfonic acid M8PFOS Perfluoro-1-[13C8]octanesulfonic acid M4PFBA Perfluoro-n-[1,2,3,4-13C4]butanoic acid M5PFPeA Perfluoro-n-[1,2,3,4,5-13C5]pentanoic acid M5PFHxA Perfluoro-n-[1,2,3,4,6-13C5]hexanoic acid MPFHpA Perfluoro-n-[-1,2,3,4-13C4]heptanoic acid M8PFOA Perfluoro-n-[13C8]octanoic acid M9PFNA Perfluoro-n-[13C9]nonanoic acid

M6PFDAPerfluoro-n-[1,2,3,4,5,6-13C6]decanoic acidM7PFUnDAPerfluoro-n-[1,2,3,4,5,6,7-13C7]undecanoic acidMPFDoDAPerfluoro-n-[1,2-13C2]dodecanoic acidMPFTeDAPerfluoro-n-[1,2-13C2]tetradecanoic acid

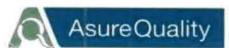
AsureQuality Reference: 18-213689 Report Issued: 18-Sep-2018

Analyte Full Name

MPFOSA Perfluoro-1-[13C8]octanesulfonamide DNEtFOSA N-ethyl-D5-perfluoro-1-octanesulfonamide DNMeFOSA N-methyl-D3-perfluoro-1-octanesulfonamide DNEtFOSAA N-ethyl-D5-perfluoro-1-octanesulfonamidoacetic acid DNMeFOSAA N-methyl-D3-perfluoro-1-octanesulfonamidoacetic acid DNEtFOSE 2-(N-ethyl-D5-perfluoro-1-octanesulfonamido)ethan-D4-ol DNMeFOSE 2-(N-methyl-D3-perfluoro-1-octanesulfonamido)ethan-D4-ol M4:2FTS 1H,1H,2H,2H-perfluoro-1-[1,2-13C2]-hexane sulfonic acid M6:2FTS 1H,1H,2H,2H-perfluoro-1-[1,2-13C2]-octane sulfonic acid M8:2FTS 1H,1H,2H,2H-perfluoro-1-[1,2-13C2]-decane sulfonic acid

Any tests marked with * are not accredited for specific matrices or analytes.

LOR = Limit of Reporting LOD = Limit of Detection NR = Not Reportable



AsureQuality Food and Environmental Submission Form/Chain of Custody

Customer Details Company Name:* Tarana Contact Person:* Callum Email:* callum.macken Contact Phone No.:* 06 76 Address:	Mackenzie zie@trc.govt.nz	Report Resu Extra Copies Report each If multiple sam to receive an in	sample separately?* ples are listed below, tick yes dividual CoA for each sample. t By (Name):* Rebecca Jo	□ Yes 🖼 i			AsureQu Wellington 1C Quadra Lower Hutt New Zealan Tel: +64 4 !	nd	u
Submission Ref.: Purchase Order No.: 7349 Contract/Quote No.:	4	☐ Quaranti ☐ Return sa NOTE: Sample: AQ to comp Are samples	Dispatched: Imple(s) dispatched in: Imple(s) dispatched in: Imple(s) after analysis (Court Im	port Permit/Transfer Form der fees apply) lks after reporting unless Yes		ructed.	■ Normal Urgent: Half qu Quarte	Turn-around-time Service (clease select fro noted TAT (50% surch r quoted TAT (100% ent testing, please contac nples to confirm available	m options below) narge) surcharge) at AQ prior to
Sample Name* (unique sample identifier)	Sample Type (Type of product/substance E.g., Potable Water, Soil, Blota Pro	t/material duct, Apple, Cow	Sample Desci	SCALING MALES	(used to	ed Date determine , if opplicable)	A STATE OF THE PARTY OF THE PAR	equirements* unds to be tested for)	AQ Ref.
GW21	Groundwat		Groundw	ater	21/0	08/18	DX -	PFCS01	
GW22	1				11			1	
GW31				798.0 998.				1	
GW33				W-2					
GW37					1 1		25.090		
Control Ø	1				1	,	1		
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				320	****		27/00 1974	7 7 10 10 10 10 10 10 10 10 10 10 10 10 10	
*Required information	And the second of the second o	WEX.		Win 1811 - 2/2			**************************************		
Comments/Additional Info	ormation:	2007	98/20 S 1	Received By Signed By:*	(Name):* L	auren Moc	7:30 23/08/ 12		

Issue Date: February 2018

Attachment No: SR-033/1



AsureQuality Limited | 1C Quadrant Drive | Waiwhetu | Lower Hutt 5010 | Wellington | New Zealand PO Box 31242 | Lower Hutt 5040 | Wellington | New Zealand t. +64 4 570 8800 | e. cswellington@asurequality.com | w. www.asurequality.com | Global Experts in Food Assurance

Certificate of Analysis

Final Report

Sean Hudgens
AECOM Consulting Services - Wellington
PO Box 27277
Wellington 6141
New Zealand

PO Number: 73494

Submitted by:
Taranaki Regional Council
Private Bag 713
Stratford 4352
New Zealand

AsureQuality ID: 18-213406-1

Report Issued: 13-Sep-2018 AsureQuality Reference: 18-213406 Sample(s) Received: 23-Aug-2018 07:30

Results

Customer Sample Name: GW3

The tests were performed on the samples as received.

Sample Description: Groundwater Sample Condition: Acceptable Sampled Date: 22-Aug-2018 Result Unit **Method Reference** Poly- and Perfluorinated Alkyl Substances (PFAS) in Water Perfluoroalkylsulfonic acids **PFPrS** <0.0010 μg/L AsureQuality Method (LC-MS/MS) PFBS < 0.0010 AsureQuality Method (LC-MS/MS) μg/L PFPeS < 0.0010 μg/L AsureQuality Method (LC-MS/MS) di-PFHxS (1) AsureQuality Method (LC-MS/MS) < 0.0010 μg/L mono-PFHxS (1) <0.0010 μg/L AsureQuality Method (LC-MS/MS) L-PFHxS (1) AsureQuality Method (LC-MS/MS) < 0.0010 μg/L Total PFHxS (3) <0.0010 AsureQuality Method (LC-MS/MS) μg/L PFHpS <0.0010 μg/L AsureQuality Method (LC-MS/MS) di-PFOS (5) <0.0010 μg/L AsureQuality Method (LC-MS/MS) mono-PFOS (5) AsureQuality Method (LC-MS/MS) < 0.0010 μg/L L-PFOS (5) < 0.0010 AsureQuality Method (LC-MS/MS) μg/L Total PFOS (7) <0.0010 AsureQuality Method (LC-MS/MS) μg/L

Sum PFHxS+PFOS (1)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFNS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFDS	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
Perfluoroalkylcarboxylic acids			
PFBA	NR	μg/L	AsureQuality Method (LC-MS/MS)
PFPeA	0.46	μg/L	AsureQuality Method (LC-MS/MS)
PFHxA	0.29	μg/L	AsureQuality Method (LC-MS/MS)
PFHpA	0.046	μg/L	AsureQuality Method (LC-MS/MS)
PFOA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFNA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFDA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFUnDA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFDoDA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFTrDA	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)

AsureQuality has used reasonable skill, care, and effort to provide an accurate analysis of the sample(s) which form(s) the subject of this report. However, the accuracy of this analysis is reliant on, and subject to, the sample(s) provided by you and your responsibility as to transportation of the sample(s). AsureQuality's standard terms of business apply to the analysis set out in this report.

Test	Result	Unit	Method Reference
PFTeDA	NR	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamides	IVIX	µ9/∟	/ loar o squares interior (LO-MO/MO)
PFOSA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
NEtFOSA-M	NR	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSA-M	NR	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamidoacetic acids		F-5' -	
NEtFOSAA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSAA	<0.0010	µg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamidoethanols			, ,
NEtFOSE-M	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSE-M	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
Telomere Sulfonic acids			· · · · · · · · · · · · · · · · · · ·
4:2 FTS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
6:2 FTS	0.051	μg/L	AsureQuality Method (LC-MS/MS)
8:2 FTS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Internal Standards			
M3PFBS	98	%	AsureQuality Method (LC-MS/MS)
M3PFHxS	100	%	AsureQuality Method (LC-MS/MS)
M8PFOS	117	%	AsureQuality Method (LC-MS/MS)
M4PFBA	NR	%	AsureQuality Method (LC-MS/MS)
M5PFPeA	85	%	AsureQuality Method (LC-MS/MS)
M5PFHxA	87	%	AsureQuality Method (LC-MS/MS)
MPFHpA	98	%	AsureQuality Method (LC-MS/MS)
M8PFOA	49	% %	
			AsureQuality Method (LC-MS/MS)
M9PFNA	99	%	AsureQuality Method (LC-MS/MS)
M6PFDA	124	%	AsureQuality Method (LC-MS/MS)
M7PFUnDA	181 (R)	%	AsureQuality Method (LC-MS/MS)
MPFDoDA	218 (R)	%	AsureQuality Method (LC-MS/MS)
MPFTeDA	NR	%	AsureQuality Method (LC-MS/MS)
MPFOSA	86	%	AsureQuality Method (LC-MS/MS)
DNEtFOSA	NR	%	AsureQuality Method (LC-MS/MS)
DNMeFOSA	NR	%	AsureQuality Method (LC-MS/MS)
DNEtFOSAA	125	%	AsureQuality Method (LC-MS/MS)
DNMeFOSAA	129	%	AsureQuality Method (LC-MS/MS)
DNEtFOSE	45	%	AsureQuality Method (LC-MS/MS)
DNMeFOSE	63	%	AsureQuality Method (LC-MS/MS)
M4:2FTS	105	%	AsureQuality Method (LC-MS/MS)
M6:2FTS	86	%	AsureQuality Method (LC-MS/MS)
M8:2FTS	104	%	AsureQuality Method (LC-MS/MS)
R = Recovery outside method limits			- , , ,
stomer Sample Name: GW5			AcureOueliky ID: 40,043
•			AsureQuality ID: 18-213
mple Description: Groundwater Imple Condition: Acceptable	Sampled Date: 22-Aug-2018		
· · · · · · · · · · · · · · · · · · ·	•	l Init	Mothod Poforonss
Test	Result	Unit	Method Reference
ly- and Perfluorinated Alkyl Substances (PFAS) i	in Water		
Perfluoroalkylsulfonic acids			
PFPrS *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PFBS * PFPeS *	<0.050 <0.050	μg/L	AsureQuality Method (LC-MS/MS) AsureQuality Method (LC-MS/MS)

dePHSAS (1)* 40.010 jul. AsureOutliny Method (LC-MSR/MS) nemon PFHSA (1)* 40.010 jul. AsureOutliny Method (LC-MSR/MS) L-PTHSA (1)* 40.010 jul. AsureOutliny Method (LC-MSR/MS) Total PFHSAS (3)* 40.010 jul. AsureOutliny Method (LC-MSR/MS) d-PFOS (5)* 40.010 jul. AsureOutliny Method (LC-MSR/MS) d-PFOS (5)* 40.010 jul. AsureOutliny Method (LC-MSR/MS) Total PFOS (7)* 40.010 jul. AsureOutliny Method (LC-MSR/MS) Total PFOS (7)* 40.010 jul. AsureOutliny Method (LC-MSR/MS) PFNS* 40.010 jul. AsureOutliny Method (LC-MSR/MS) PFNA* 40.010 jul. AsureOutliny Method (LC-MSR/MS) PFNA* 40.020 jul. AsureOutliny Method (LC-MSR/MS) PFNA* 40.020	Test	Result	Unit	Method Reference
LPFHoS (1)*	di-PFHxS (1) *	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
Total PFHs (3)* 40.010 μgt. AsureQuality Method (LC MSAMS)	mono-PFHxS (1) *	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
FFHp6's 4,0101 μg/L AsureQuality Method (LC-MSNMS) di PFOS (5)* 4,0101 μg/L AsureQuality Method (LC-MSNMS) LPPOS (5)* 4,0101 μg/L AsureQuality Method (LC-MSNMS) Total PFOS (7)* 4,0101 μg/L AsureQuality Method (LC-MSNMS) FFDS (7)* 4,0101 μg/L AsureQuality Method (LC-MSNMS) FFDS* 4,050 μg/L AsureQuality Method (LC-MSNMS) FFDS* 0,12 μg/L AsureQuality Method (LC-MSNMS) FFDA* 0,12 μg/L AsureQuality Method (LC-MSNMS) FFDA* 0,050 μg/L AsureQuality Method (LC-MSNMS) <td>L-PFHxS (1) *</td> <td><0.010</td> <td>μg/L</td> <td>AsureQuality Method (LC-MS/MS)</td>	L-PFHxS (1) *	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
σ. PFOS (5)* 40.010 μg/L AsureQuality Method (LC-MSNMS) mono-PFOS (5)* 40.010 μg/L AsureQuality Method (LC-MSNMS) LFPOS (6)* 40.010 μg/L AsureQuality Method (LC-MSNMS) Stun PFOS (7)* 40.010 μg/L AsureQuality Method (LC-MSNMS) Sum PFNs+PFOS (1)** 40.010 μg/L AsureQuality Method (LC-MSNMS) PFNs* 40.020 μg/L AsureQuality Method (LC-MSNMS) PFNs* 40.020 μg/L AsureQuality Method (LC-MSNMS) PFBA* 40.10 μg/L AsureQuality Method (LC-MSNMS) PFPLA* 40.05 μg/L AsureQuality Method (LC-MSNMS) PFNA* 40.05 μg/L AsureQuality	Total PFHxS (3) *	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
MONO-PFOS (5)* 40.010 µg/L AsureQuality Method (LC-MS/MS) L-PFOS (5)* 40.010 µg/L AsureQuality Method (LC-MS/MS) L-PFOS (5)* 40.010 µg/L AsureQuality Method (LC-MS/MS) L-PFOS (7)* 40.050 µg	PFHpS *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
L-PFOS (5) '	di-PFOS (5) *	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
Total PFOS (T)	mono-PFOS (5) *	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
Sum PFHsSPFFOS (1)* 4.0101 µg/L AsureQuality Method (LC-MSMS) PFNS* <0.050	L-PFOS (5) *	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
PFNS* 4.0050 µgl. AsureQuality Method (LC-MSMS) PFDS* <0.050 µgl. AsureQuality Method (LC-MSMS) PFDBA* <0.10 µgl. AsureQuality Method (LC-MSMS) PFPBA* <0.12 µgl. AsureQuality Method (LC-MSMS) PFPBA* <0.050 µgl. AsureQuality Method (LC-MSMS) PFNA* <0.050 µgl. AsureQuality Method (LC-MSMS) PFDA* <0.050 µgl. AsureQuality Method (LC-MSMS) PFDDA* <0.10 µgl. AsureQuality Method (LC-MSMS) PFTDA* <0.10 µgl. AsureQuality Method (LC-MSMS) PFTEDA* <0.10 µgl. AsureQuality Method (LC-MSMS) NEEFOSA** <0.10 µgl. AsureQuality Method (LC-MSMS)	Total PFOS (7) *	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
PFDS* ygil AsureQuality Method (LC-MS/MS) Perfluorocalitycarboxylic acide ygil AsureQuality Method (LC-MS/MS) PFDRA* 0.10 µgil AsureQuality Method (LC-MS/MS) PFPEA* 0.056 µgil AsureQuality Method (LC-MS/MS) PFPDA* 0.050 µgil AsureQuality Method (LC-MS/MS) PFDA* 0.050 µgil AsureQuality Method (LC-MS/MS) PFDDA* 0.050 µgil AsureQuality Method (LC-MS/MS) PFDDA* 0.010 µgil AsureQuality Method (LC-MS/MS) PFDDA* 0.010 µgil AsureQuality Method (LC-MS/MS) PFTDA* 0.010 µgil AsureQuality Method (LC-MS/MS) PFTDA* 0.010 µgil AsureQuality Method (LC-MS/MS) NEIFOSAM* 0.010 µgil AsureQuality Method	Sum PFHxS+PFOS (1) *	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
Perfluoroallylatrboxylic acids FEBA* <0.10 µg/L AsureQuality Method (LC-MS/MS) PFEPA* 0.12 µg/L AsureQuality Method (LC-MS/MS) PFEHA* 0.056 µg/L AsureQuality Method (LC-MS/MS) PFEHA* <0.050	PFNS *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PERIA* <0.10	PFDS *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PFBA* 40.10 µg/L AsureQuality Method (LC-MS/MS) PFPAA* 0.12 µg/L AsureQuality Method (LC-MS/MS) PFPBA* 0.905 µg/L AsureQuality Method (LC-MS/MS) PFPAA* 0.905 µg/L AsureQuality Method (LC-MS/MS) PFDA* 0.901 µg/L AsureQuality Method (LC-MS/MS) PFDA* 0.905 µg/L AsureQuality Method (LC-MS/MS) PFDA* 0.905 µg/L AsureQuality Method (LC-MS/MS) PFDA* 0.905 µg/L AsureQuality Method (LC-MS/MS) PFDA* 0.900 µg/L AsureQuality Method (LC-MS/MS) PFDDA* 0.910 µg/L AsureQuality Method (LC-MS/MS) PFTDA* 0.910 µg/L AsureQuality Method (LC-MS/MS) PFTDA* 0.910 µg/L AsureQuality Method (LC-MS/MS) NEIFOSA** 0.910 µg/L AsureQuality Method (LC-MS/MS) NEIFOSA** 0.910 µg/L AsureQuality Method (LC-MS/MS) NMEFOSA** 0.910 µg/L AsureQuality Method (LC-MS/MS)	Perfluoroalkylcarboxylic acids			
PFHEA* 0.056 µg/L AsureQuality Method (LC-MS/MS) PFHpA* <0.050	·	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
PFHpA * < 0.050 µg/L AsureQuality Method (LC-MS/MS) PFOA * < 0.010	PFPeA *	0.12	μg/L	AsureQuality Method (LC-MS/MS)
PFOA * <0.010 μg/L AsureQuality Method (LC-MS/MS) PFNA * <0.050	PFHxA *	0.056	μg/L	AsureQuality Method (LC-MS/MS)
PFNA* < 0.050 µg/L AsureQuality Method (LC-MS/MS) PFDA* < 0.050	PFHpA *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PFDA* <0.050 μg/L AsureQuality Method (LC-MS/MS) PFUNDA* <0.050	PFOA *	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
PFUNDA* <0.050 µg/L AsureQuality Method (LC-MS/MS) PFDDDA* <0.10	PFNA *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PFDDDA* <0.10 μg/L AsureQuality Method (LC-MS/MS) PFTrDA* <1.0	PFDA *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PFTrDA* <1.0 μg/L AsureQuality Method (LC-MS/MS) PFTeDA* <1.0 μg/L AsureQuality Method (LC-MS/MS) PFTeDA* <1.0 μg/L AsureQuality Method (LC-MS/MS) Perfluorocotanesulfonamides PEOSA* <0.050 μg/L AsureQuality Method (LC-MS/MS) NE(FOSAM* <0.10 μg/L AsureQuality Method (LC-MS/MS) Perfluoroctanesulfonamidoacetic acids <0.10 μg/L AsureQuality Method (LC-MS/MS) NMEFOSAA* <0.10 μg/L AsureQuality Method (LC-MS/MS) Perfluoroctanesulfonamidoacetic acids NMEFOSAA* <0.10 μg/L AsureQuality Method (LC-MS/MS) NMEFOSAA* <0.10 μg/L AsureQuality Method (LC-MS/MS) NEIFOSEAM* <0.10 μg/L AsureQuality Method (LC-MS/MS) NMEFOSEAM* <0.10 μg/L AsureQuality Method (LC-MS/MS) E1FOSEA* <0.10 μg/L AsureQuality Method (LC-MS/MS)	PFUnDA *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PFTeDA* <1.0 µg/L AsureQuality Method (LC-MS/MS) Perfluoroctanesulfonamidos FOSA* <0.050 µg/L AsureQuality Method (LC-MS/MS) NEIFOSA-M* <0.010 µg/L AsureQuality Method (LC-MS/MS) NMeFOSA-M* <0.010 µg/L AsureQuality Method (LC-MS/MS) NEIFOSAA* <0.010 µg/L AsureQuality Method (LC-MS/MS) NEIFOSAA* <0.010 µg/L AsureQuality Method (LC-MS/MS) Perfluoroctanesulfonamidoethanols NEIFOSE-M* <0.010 µg/L AsureQuality Method (LC-MS/MS) NMeFOSE-M* <0.010 µg/L AsureQuality Method (LC-MS/MS) Telomere Sulfona calds *** 2- FTS* <0.010 µg/L AsureQuality Method (LC-MS/MS) 8:2 FTS* <0.010 µg/L AsureQuality Method (LC-MS/MS) 8:2 FTS* <0.010 µg/L AsureQuality Method (LC-MS/MS) M3PFBS* 106 % AsureQuality Method (LC-MS/MS) M3PFHxS* 105 % AsureQuality Method (LC-MS/MS)	PFDoDA *	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
PFTEDA * <1.0 µg/L AsureQuality Method (LC-MS/MS) Perfluoroctanesulfonamidos FOSA * <0.050 µg/L AsureQuality Method (LC-MS/MS) NEIFOSA-M * <0.10 µg/L AsureQuality Method (LC-MS/MS) NMeFOSA-M * <0.10 µg/L AsureQuality Method (LC-MS/MS) Perfluoroctanesulfonamidoacetic acids NEIFOSAA * <0.10 µg/L AsureQuality Method (LC-MS/MS) NMeFOSAA * <0.10 µg/L AsureQuality Method (LC-MS/MS) Perfluoroctanesulfonamidoethanols V V NEIFOSE-M * <0.10 µg/L AsureQuality Method (LC-MS/MS) NMeFOSE-M * <0.10 µg/L AsureQuality Method (LC-MS/MS) NMEFOSE-M * <0.10 µg/L AsureQuality Method (LC-MS/MS) 12 FTS * <0.10 µg/L AsureQuality Method (LC-MS/MS) 8:2 FTS * <0.10 µg/L AsureQuality Method (LC-MS/MS) 8:2 FTS * <0.10 µg/L AsureQuality Method (LC-MS/MS) M3PFBS * 106 % AsureQuality Method (LC-MS/MS) M3PFHx	PFTrDA *	<1.0	μg/L	AsureQuality Method (LC-MS/MS)
PFOSA * <0.050	PFTeDA *	<1.0		AsureQuality Method (LC-MS/MS)
NEIFOSA-M* <0.10 µg/L AsureQuality Method (LC-MS/MS) NMeFOSA-M* <0.10 µg/L AsureQuality Method (LC-MS/MS) Perfluorooctanesulfonamidoacetic acids NEIFOSAA* <0.10 µg/L AsureQuality Method (LC-MS/MS) NMeFOSAA* <0.10 µg/L AsureQuality Method (LC-MS/MS) Perfluorooctanesulfonamidoethanols NEIFOSE-M* <0.10 µg/L AsureQuality Method (LC-MS/MS) NMeFOSE-M* <0.010 µg/L AsureQuality Method (LC-MS/MS) Telomere Sulfonic acids 4:2 FTS * <0.10 µg/L AsureQuality Method (LC-MS/MS) 6:2 FTS * <0.10 µg/L AsureQuality Method (LC-MS/MS) 8:2 FTS * <0.10 µg/L AsureQuality Method (LC-MS/MS) 8:2 FTS * <0.10 µg/L AsureQuality Method (LC-MS/MS) M3PFBS * 106 % AsureQuality Method (LC-MS/MS) M3PFHS* 108 % AsureQuality Method (LC-MS/MS) M4PFBA * 107 % AsureQuality Method (LC-MS/MS)	Perfluorooctanesulfonamides			
NMeFOSA-M* <0.10	PFOSA*	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamidoacetic acids NEIFOSAA* <0.10	NEtFOSA-M *	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
NEIFOSAA* <0.10	NMeFOSA-M *	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSAA* <0.10 μg/L AsureQuality Method (LC-MS/MS) Perfluorocctanesulfonamidoethanois Verfloors	Perfluorooctanesulfonamidoacetic acids			
Perfluorocctanesulfonamidoethanols NEIFOSE-M* <0.10	NEtFOSAA *	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
NEtFOSE-M* <0.10 μg/L AsureQuality Method (LC-MS/MS) NMeFOSE-M* <0.10 μg/L AsureQuality Method (LC-MS/MS) Telomere Sulfonic acids 4:2 FTS* <0.10	NMeFOSAA *	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSE-M* <0.10 μg/L AsureQuality Method (LC-MS/MS) Telomere Sulfonic acids Suffection of the part of the	Perfluorooctanesulfonamidoethanols			
Telomere Sulfonic acids 4:2 FTS * <0.10			μg/L	AsureQuality Method (LC-MS/MS)
4:2 FTS * <0.10	NMeFOSE-M *	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
6:2 FTS * <0.10				
8:2 FTS * <0.10 μg/L AsureQuality Method (LC-MS/MS) Internal Standards M3PFBS * 106 % AsureQuality Method (LC-MS/MS) M3PFHxS * 105 % AsureQuality Method (LC-MS/MS) M8PFOS * 108 % AsureQuality Method (LC-MS/MS) M4PFBA * 107 % AsureQuality Method (LC-MS/MS) M5PFPeA * 105 % AsureQuality Method (LC-MS/MS) M5PFHxA * 108 % AsureQuality Method (LC-MS/MS) M8PFOA * 104 % AsureQuality Method (LC-MS/MS) M9PFNA * 115 % AsureQuality Method (LC-MS/MS)				
Internal Standards M3PFBS * 106 % AsureQuality Method (LC-MS/MS) M3PFHxS * 105 % AsureQuality Method (LC-MS/MS) M8PFOS * 108 % AsureQuality Method (LC-MS/MS) M4PFBA * 107 % AsureQuality Method (LC-MS/MS) M5PFPeA * 107 % AsureQuality Method (LC-MS/MS) M5PFHxA * 105 % AsureQuality Method (LC-MS/MS) MPFHpA * 108 % AsureQuality Method (LC-MS/MS) M8PFOA * 104 % AsureQuality Method (LC-MS/MS) M9PFNA * 115 % AsureQuality Method (LC-MS/MS)				
M3PFBS * 106 % AsureQuality Method (LC-MS/MS) M3PFHxS * 105 % AsureQuality Method (LC-MS/MS) M8PFOS * 108 % AsureQuality Method (LC-MS/MS) M4PFBA * 107 % AsureQuality Method (LC-MS/MS) M5PFPeA * 107 % AsureQuality Method (LC-MS/MS) M5PFHxA * 105 % AsureQuality Method (LC-MS/MS) MPFHpA * 108 % AsureQuality Method (LC-MS/MS) M8PFOA * 104 % AsureQuality Method (LC-MS/MS) M9PFNA * 115 % AsureQuality Method (LC-MS/MS)		<0.10	μg/L	AsureQuality Method (LC-MS/MS)
M3PFHxS * 105 % AsureQuality Method (LC-MS/MS) M8PFOS * 108 % AsureQuality Method (LC-MS/MS) M4PFBA * 107 % AsureQuality Method (LC-MS/MS) M5PFPeA * 107 % AsureQuality Method (LC-MS/MS) M5PFHxA * 105 % AsureQuality Method (LC-MS/MS) MPFHpA * 108 % AsureQuality Method (LC-MS/MS) M8PFOA * 104 % AsureQuality Method (LC-MS/MS) M9PFNA * 115 % AsureQuality Method (LC-MS/MS)		400	0/	
M8PFOS * 108 % AsureQuality Method (LC-MS/MS) M4PFBA * 107 % AsureQuality Method (LC-MS/MS) M5PFPeA * 107 % AsureQuality Method (LC-MS/MS) M5PFHxA * 105 % AsureQuality Method (LC-MS/MS) MPFHpA * 108 % AsureQuality Method (LC-MS/MS) M8PFOA * 104 % AsureQuality Method (LC-MS/MS) M9PFNA * 115 % AsureQuality Method (LC-MS/MS)				, ,
M4PFBA * 107 % AsureQuality Method (LC-MS/MS) M5PFPeA * 107 % AsureQuality Method (LC-MS/MS) M5PFHxA * 105 % AsureQuality Method (LC-MS/MS) MPFHpA * 108 % AsureQuality Method (LC-MS/MS) M8PFOA * 104 % AsureQuality Method (LC-MS/MS) M9PFNA * 115 % AsureQuality Method (LC-MS/MS)				<u> </u>
M5PFPeA * 107 % AsureQuality Method (LC-MS/MS) M5PFHxA * 105 % AsureQuality Method (LC-MS/MS) MPFHpA * 108 % AsureQuality Method (LC-MS/MS) M8PFOA * 104 % AsureQuality Method (LC-MS/MS) M9PFNA * 115 % AsureQuality Method (LC-MS/MS)				, ,
M5PFHxA* 105 % AsureQuality Method (LC-MS/MS) MPFHpA* 108 % AsureQuality Method (LC-MS/MS) M8PFOA* 104 % AsureQuality Method (LC-MS/MS) M9PFNA* 115 % AsureQuality Method (LC-MS/MS)				
MPFHpA * 108 % AsureQuality Method (LC-MS/MS) M8PFOA * 104 % AsureQuality Method (LC-MS/MS) M9PFNA * 115 % AsureQuality Method (LC-MS/MS)				
M8PFOA * 104 % AsureQuality Method (LC-MS/MS) M9PFNA * 115 % AsureQuality Method (LC-MS/MS)				
M9PFNA * 115 % AsureQuality Method (LC-MS/MS)	<u> </u>			
· · · · ·				
M6PFDA * 112 % AsureQuality Method (LC-MS/MS)				<u> </u>
	M6PFDA *	112	%	AsureQuality Method (LC-MS/MS)

Test	Result	Unit	Method Reference
M7PFUnDA *	110	%	AsureQuality Method (LC-MS/MS)
MPFDoDA *	102	%	AsureQuality Method (LC-MS/MS)
MPFTeDA *	106	%	AsureQuality Method (LC-MS/MS)
MPFOSA *	111	%	AsureQuality Method (LC-MS/MS)
DNEtFOSA *	106	%	AsureQuality Method (LC-MS/MS)
DNMeFOSA *	102	%	AsureQuality Method (LC-MS/MS)
DNEtFOSAA *	106	%	AsureQuality Method (LC-MS/MS)
DNMeFOSAA *	108	%	AsureQuality Method (LC-MS/MS)
DNEtFOSE *	106	%	AsureQuality Method (LC-MS/MS)
DNMeFOSE *	111	%	AsureQuality Method (LC-MS/MS)
M4:2FTS *	111	%	AsureQuality Method (LC-MS/MS)
M6:2FTS *	112	%	AsureQuality Method (LC-MS/MS)
M8:2FTS *	103	%	AsureQuality Method (LC-MS/MS)
stomer Sample Name: GW8A			AsureQuality ID: 18-2134

Sample Condition: Acceptable Sampled Date: 22-Aug-2018

Test	Result	Unit	Method Reference
oly- and Perfluorinated Alkyl Substances (PFAS) in Water			
Perfluoroalkylsulfonic acids			
PFPrS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFBS	0.0012	μg/L	AsureQuality Method (LC-MS/MS)
PFPeS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
di-PFHxS (1)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
mono-PFHxS (1)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
L-PFHxS (1)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Total PFHxS (3)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFHpS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
di-PFOS (5)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
mono-PFOS (5)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
L-PFOS (5)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Total PFOS (7)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Sum PFHxS+PFOS (1)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFNS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFDS	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
Perfluoroalkylcarboxylic acids			
PFBA	0.0086	μg/L	AsureQuality Method (LC-MS/MS)
PFPeA	0.025	μg/L	AsureQuality Method (LC-MS/MS)
PFHxA	0.020	μg/L	AsureQuality Method (LC-MS/MS)
PFHpA	0.012	μg/L	AsureQuality Method (LC-MS/MS)
PFOA	0.0040	μg/L	AsureQuality Method (LC-MS/MS)
PFNA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFDA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFUnDA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFDoDA	NR	μg/L	AsureQuality Method (LC-MS/MS)
PFTrDA	NR	μg/L	AsureQuality Method (LC-MS/MS)
PFTeDA	NR	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamides			
PFOSA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)

Test	Result	Unit	Method Reference
NEtFOSA-M	NR	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSA-M	NR	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamidoacetic acids			
NEtFOSAA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSAA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamidoethanols			
NEtFOSE-M	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSE-M	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
Telomere Sulfonic acids			
4:2 FTS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
6:2 FTS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
8:2 FTS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Internal Standards			
M3PFBS	111	%	AsureQuality Method (LC-MS/MS)
M3PFHxS	112	%	AsureQuality Method (LC-MS/MS)
M8PFOS	124	%	AsureQuality Method (LC-MS/MS)
M4PFBA	44	%	AsureQuality Method (LC-MS/MS)
M5PFPeA	100	%	AsureQuality Method (LC-MS/MS)
M5PFHxA	106	%	AsureQuality Method (LC-MS/MS)
MPFHpA	112	%	AsureQuality Method (LC-MS/MS)
M8PFOA	74	%	AsureQuality Method (LC-MS/MS)
M9PFNA	106	%	AsureQuality Method (LC-MS/MS)
M6PFDA	123	%	AsureQuality Method (LC-MS/MS)
M7PFUnDA	188 (R)	%	AsureQuality Method (LC-MS/MS)
MPFDoDA	NR	%	AsureQuality Method (LC-MS/MS)
MPFTeDA	NR	%	AsureQuality Method (LC-MS/MS)
MPFOSA	95	%	AsureQuality Method (LC-MS/MS)
DNEtFOSA	NR	%	AsureQuality Method (LC-MS/MS)
DNMeFOSA	NR	%	AsureQuality Method (LC-MS/MS)
DNEtFOSAA	158 (R)	%	AsureQuality Method (LC-MS/MS)
DNMeFOSAA	140	%	AsureQuality Method (LC-MS/MS)
DNEtFOSE	121	%	AsureQuality Method (LC-MS/MS)
DNMeFOSE	122	%	AsureQuality Method (LC-MS/MS)
M4:2FTS	140	%	AsureQuality Method (LC-MS/MS)
M6:2FTS	101	%	AsureQuality Method (LC-MS/MS)
M8:2FTS	129	%	AsureQuality Method (LC-MS/MS)
R = Recovery outside method limits			
ustomer Sample Name: GW10			AsureQuality ID: 18-213406-
ample Description: Groundwater			, want daming 150 110 110 110 110 110 110 110 110 110
ample Condition: Acceptable	Sampled Date: 22-Aug-2018		
Test	Result	Unit	Method Reference
bly- and Perfluorinated Alkyl Substances (F	raoj III Waler		
Perfluoroalkylsulfonic acids PFPrS	<0.0010	ug/l	AsureQuality Method (LC-MS/MS)
PFBS	<0.0010	μg/L	,
PFPeS		μg/L	AsureQuality Method (LC-MS/MS)
	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
di-PFHxS (1)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
mono-PFHxS (1)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
L-PFHxS (1)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)

Test	Result	Unit	Method Reference
Total PFHxS (3)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFHpS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
di-PFOS (5)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
mono-PFOS (5)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
L-PFOS (5)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Total PFOS (7)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Sum PFHxS+PFOS (1)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFNS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFDS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Perfluoroalkylcarboxylic acids			
PFBA	0.055	μg/L	AsureQuality Method (LC-MS/MS)
PFPeA	0.21	μg/L	AsureQuality Method (LC-MS/MS)
PFHxA	0.12	μg/L	AsureQuality Method (LC-MS/MS)
PFHpA	0.048	μg/L	AsureQuality Method (LC-MS/MS)
PFOA	0.0081	μg/L	AsureQuality Method (LC-MS/MS)
PFNA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFDA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFUnDA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFDoDA	<0.025	μg/L	AsureQuality Method (LC-MS/MS)
PFTrDA	<0.025	μg/L	AsureQuality Method (LC-MS/MS)
PFTeDA	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamides			
PFOSA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
NEtFOSA-M	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSA-M	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamidoacetic acids			
NEtFOSAA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSAA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamidoethanols			
NEtFOSE-M	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSE-M	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
Telomere Sulfonic acids	40.0040		Assume Oscality, Mathead (LC MC/MC)
4:2 FTS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
6:2 FTS	0.028	μg/L	AsureQuality Method (LC-MS/MS) AsureQuality Method (LC-MS/MS)
8:2 FTS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Internal Standards M3PFBS	105	%	AsureQuality Method (LC-MS/MS)
M3PFHxS	108	%	AsureQuality Method (LC-MS/MS)
M8PFOS	121	%	AsureQuality Method (LC-MS/MS)
M4PFBA	48	%	AsureQuality Method (LC-MS/MS)
M5PFPeA	97	%	AsureQuality Method (LC-MS/MS)
		%	<u> </u>
M5PFHxA MPFHpA	112	%	AsureQuality Method (LC-MS/MS) AsureQuality Method (LC-MS/MS)
M8PFOA	66		AsureQuality Method (LC-MS/MS)
		%	AsureQuality Method (LC-MS/MS)
M9PFNA	105	%	AsureQuality Method (LC-MS/MS)
M6PFDA	120	%	AsureQuality Method (LC-MS/MS)
M7PFUnDA	112	%	AsureQuality Method (LC-MS/MS)
MPFDoDA	124	%	AsureQuality Method (LC-MS/MS)
MPFTeDA	202 (R)	%	AsureQuality Method (LC-MS/MS)

PFDA *

PFUnDA *

PFDoDA *

PFTrDA *

PFTeDA *

PFOSA *

NEtFOSA-M *

NMeFOSA-M *

Perfluorooctanesulfonamides

Test	Result	Unit	Method Reference
MPFOSA	107	%	AsureQuality Method (LC-MS/MS)
DNEtFOSA	78	%	AsureQuality Method (LC-MS/MS)
DNMeFOSA	88	%	AsureQuality Method (LC-MS/MS)
DNEtFOSAA	126	%	AsureQuality Method (LC-MS/MS)
DNMeFOSAA	136	%	AsureQuality Method (LC-MS/MS)
DNEtFOSE	101	%	AsureQuality Method (LC-MS/MS)
DNMeFOSE	89	%	AsureQuality Method (LC-MS/MS)
M4:2FTS	126	%	AsureQuality Method (LC-MS/MS)
M6:2FTS	95	%	AsureQuality Method (LC-MS/MS)
M8:2FTS	114	%	AsureQuality Method (LC-MS/MS)
R = Recovery outside method limits			
Customer Sample Name: GW46			AsureQuality ID: 18-21340
ample Description: Groundwater			
Sample Condition: Acceptable	Sampled Date: 22-Aug-2018		
Test	Result	Unit	Method Reference
oly- and Perfluorinated Alkyl Substances (PFAS) in	Water		
Perfluoroalkylsulfonic acids			
PFPrS *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PFBS *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PFPeS *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
di-PFHxS (1) *	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
mono-PFHxS (1) *	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
L-PFHxS (1) *	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
Total PFHxS (3) *	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
PFHpS *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
di-PFOS (5) *	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
mono-PFOS (5) *	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
L-PFOS (5) *	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
Total PFOS (7) *	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
Sum PFHxS+PFOS (1) *	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
PFNS *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PFDS *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
Perfluoroalkylcarboxylic acids			
PFBA *		//	
I I DA	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
PFPeA *	<0.10 0.24	μg/L μg/L	AsureQuality Method (LC-MS/MS) AsureQuality Method (LC-MS/MS)
PFPeA *	0.24	μg/L	AsureQuality Method (LC-MS/MS)
PFPeA * PFHxA *	0.24 0.14	µg/L µg/L	AsureQuality Method (LC-MS/MS) AsureQuality Method (LC-MS/MS)

<0.050

< 0.050

<0.10

<1.0

<1.0

<0.050

<0.10

<0.10

μg/L

μg/L

μg/L

μg/L

μg/L

μg/L

μg/L

μg/L

AsureQuality Method (LC-MS/MS)

Test	Result	Unit	Method Reference
Perfluorooctanesulfonamidoacetic acids			
NEtFOSAA *	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSAA *	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamidoethanols			
NEtFOSE-M *	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSE-M *	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
Telomere Sulfonic acids			
4:2 FTS *	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
6:2 FTS *	0.12	μg/L	AsureQuality Method (LC-MS/MS)
8:2 FTS *	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
Internal Standards			
M3PFBS *	101	%	AsureQuality Method (LC-MS/MS)
M3PFHxS *	105	%	AsureQuality Method (LC-MS/MS)
M8PFOS *	106	%	AsureQuality Method (LC-MS/MS)
M4PFBA *	105	%	AsureQuality Method (LC-MS/MS)
M5PFPeA *	104	%	AsureQuality Method (LC-MS/MS)
M5PFHxA *	103	%	AsureQuality Method (LC-MS/MS)
MPFHpA *	104	%	AsureQuality Method (LC-MS/MS)
M8PFOA *	103	%	AsureQuality Method (LC-MS/MS)
M9PFNA *	112	%	AsureQuality Method (LC-MS/MS)
M6PFDA *	111	%	AsureQuality Method (LC-MS/MS)
M7PFUnDA *	101	%	AsureQuality Method (LC-MS/MS)
MPFDoDA *	107	%	AsureQuality Method (LC-MS/MS)
MPFTeDA *	119	%	AsureQuality Method (LC-MS/MS)
MPFOSA *	106	%	AsureQuality Method (LC-MS/MS)
DNEtFOSA *	104	%	AsureQuality Method (LC-MS/MS)
DNMeFOSA *	103	%	AsureQuality Method (LC-MS/MS)
DNEtFOSAA *	105	%	AsureQuality Method (LC-MS/MS)
DNMeFOSAA *	107	%	AsureQuality Method (LC-MS/MS)
DNEtFOSE *	108	%	AsureQuality Method (LC-MS/MS)
DNMeFOSE *	105	%	AsureQuality Method (LC-MS/MS)
M4:2FTS *	108	%	AsureQuality Method (LC-MS/MS)
M6:2FTS *	108	%	AsureQuality Method (LC-MS/MS)
M8:2FTS *	101	%	AsureQuality Method (LC-MS/MS)
	·		
customer Sample Name: GW47			AsureQuality ID: 18-213406-6
ample Description: Groundwater Cample Condition: Acceptable	Sampled Date: 22-Aug-2018		
	· · · · · · · · · · · · · · · · · · ·	Unit	Method Reference
Test	Result	Onit	Method Reference
oly- and Perfluorinated Alkyl Substances (PF/	AS) in Water		
Perfluoroalkylsulfonic acids			Assess Overlike Martin 1 (1 O MO/125)
PFPrS *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PFBS *	<0.050	μg/L "	AsureQuality Method (LC-MS/MS)
PFPeS *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
di-PFHxS (1) *	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
mono-PFHxS (1) *	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
L-PFHxS (1) *	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
Total PFHxS (3) *	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
PFHpS *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)

Test	Result	Unit	Method Reference
di-PFOS (5) *	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
mono-PFOS (5) *	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
L-PFOS (5) *	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
Total PFOS (7) *	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
Sum PFHxS+PFOS (1) *	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
PFNS *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PFDS *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
Perfluoroalkylcarboxylic acids			
PFBA *	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
PFPeA *	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
PFHxA *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PFHpA *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PFOA *	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
PFNA *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PFDA *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PFUnDA *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PFDoDA *	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
PFTrDA *	<1.0	μg/L	AsureQuality Method (LC-MS/MS)
PFTeDA *	<1.0	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamides			
PFOSA *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
NEtFOSA-M *	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSA-M *	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamidoacetic acids			
NEtFOSAA *	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSAA *	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamidoethanols			
NEtFOSE-M *	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSE-M *	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
Telomere Sulfonic acids			
4:2 FTS *	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
6:2 FTS *	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
8:2 FTS *	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
Internal Standards	400	0/	
M3PFBS *	103	%	AsureQuality Method (LC-MS/MS)
M3PFHxS *	106	%	AsureQuality Method (LC-MS/MS)
M8PFOS *	110	%	AsureQuality Method (LC-MS/MS)
M4PFBA *	106	%	AsureQuality Method (LC-MS/MS)
M5PFPeA *	109	%	AsureQuality Method (LC-MS/MS)
M5PFHxA *	103	%	AsureQuality Method (LC-MS/MS)
MPFHpA *	106	%	AsureQuality Method (LC-MS/MS)
M8PFOA *	105	%	AsureQuality Method (LC-MS/MS)
M9PFNA *	110	%	AsureQuality Method (LC-MS/MS)
M6PFDA *	110	%	AsureQuality Method (LC-MS/MS)
M7PFUnDA *	102	%	AsureQuality Method (LC-MS/MS)
MPFDoDA *	105	%	AsureQuality Method (LC-MS/MS)
MPFTeDA *	85	%	AsureQuality Method (LC-MS/MS)
MPFOSA*	105	%	AsureQuality Method (LC-MS/MS)
DNEtFOSA *	108	%	AsureQuality Method (LC-MS/MS)

NMeFOSAA *

Report Number: 1234867

Test	Result	Unit	Method Reference
DNMeFOSA *	103	%	AsureQuality Method (LC-MS/MS)
DNEtFOSAA *	107	%	AsureQuality Method (LC-MS/MS)
DNMeFOSAA *	109	%	AsureQuality Method (LC-MS/MS)
DNEtFOSE *	112	%	AsureQuality Method (LC-MS/MS)
DNMeFOSE *	102	%	AsureQuality Method (LC-MS/MS)
M4:2FTS *	112	%	AsureQuality Method (LC-MS/MS)
M6:2FTS *	113	%	AsureQuality Method (LC-MS/MS)
M8:2FTS *	98	%	AsureQuality Method (LC-MS/MS)
Customer Sample Name: Control02			AsureQuality ID: 18-213406-7
Sample Description: Groundwater			7.0010 Quality 15. 10 210 100 1
Sample Condition: Acceptable	Sampled Date: 22-Aug-2018		
Test	Result	Unit	Method Reference
Poly- and Perfluorinated Alkyl Substances (PFAS) in	n Water		
Perfluoroalkylsulfonic acids			
PFPrS *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PFBS *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PFPeS *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
di-PFHxS (1) *	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
mono-PFHxS (1) *	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
L-PFHxS (1) *	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
Total PFHxS (3) *	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
PFHpS *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
di-PFOS (5) *	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
mono-PFOS (5) *	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
L-PFOS (5) *	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
Total PFOS (7) *	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
Sum PFHxS+PFOS (1) *	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
PFNS *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PFDS *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
Perfluoroalkylcarboxylic acids			
PFBA *	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
PFPeA *	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
PFHxA *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PFHpA *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PFOA *	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
PFNA *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PFDA *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PFUnDA *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PFDoDA *	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
PFTrDA *	<1.0	μg/L	AsureQuality Method (LC-MS/MS)
PFTeDA *	<1.0	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamides			
PFOSA *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
NEtFOSA-M *	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSA-M *	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamidoacetic acids			
NEtFOSAA *	<0.10	μg/L	AsureQuality Method (LC-MS/MS)

μg/L

<0.10

AsureQuality Method (LC-MS/MS)

Test	Result	Unit	Method Reference
Perfluorooctanesulfonamidoethanols			
NEtFOSE-M *	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSE-M *	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
Telomere Sulfonic acids			
4:2 FTS *	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
6:2 FTS *	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
8:2 FTS *	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
Internal Standards			
M3PFBS *	108	%	AsureQuality Method (LC-MS/MS)
M3PFHxS *	110	%	AsureQuality Method (LC-MS/MS)
M8PFOS *	116	%	AsureQuality Method (LC-MS/MS)
M4PFBA *	107	%	AsureQuality Method (LC-MS/MS)
M5PFPeA *	109	%	AsureQuality Method (LC-MS/MS)
M5PFHxA *	109	%	AsureQuality Method (LC-MS/MS)
MPFHpA *	108	%	AsureQuality Method (LC-MS/MS)
M8PFOA *	105	%	AsureQuality Method (LC-MS/MS)
M9PFNA *	119	%	AsureQuality Method (LC-MS/MS)
M6PFDA *	114	%	AsureQuality Method (LC-MS/MS)
M7PFUnDA *	111	%	AsureQuality Method (LC-MS/MS)
MPFDoDA *	116	%	AsureQuality Method (LC-MS/MS)
MPFTeDA *	147	%	AsureQuality Method (LC-MS/MS)
MPFOSA *	112	%	AsureQuality Method (LC-MS/MS)
DNEtFOSA *	109	%	AsureQuality Method (LC-MS/MS)
DNMeFOSA *	104	%	AsureQuality Method (LC-MS/MS)
DNEtFOSAA *	114	%	AsureQuality Method (LC-MS/MS)
DNMeFOSAA *	112	%	AsureQuality Method (LC-MS/MS)
DNEtFOSE *	113	%	AsureQuality Method (LC-MS/MS)
DNMeFOSE *	109	%	AsureQuality Method (LC-MS/MS)
M4:2FTS *	112	%	AsureQuality Method (LC-MS/MS)
M6:2FTS *	116	%	AsureQuality Method (LC-MS/MS)
M8:2FTS *	101	%	AsureQuality Method (LC-MS/MS)

Customer Sample Name: Duplicate of 18-213406-1

AsureQuality ID: 18-213406-8

Sample Description: GW3 dup **Sample Condition**: Acceptable

Test	Result	Unit	Method Reference
oly- and Perfluorinated Alkyl Substances (PFAS)	in Water		
Perfluoroalkylsulfonic acids			
PFPrS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFBS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFPeS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
di-PFHxS (1)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
mono-PFHxS (1)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
L-PFHxS (1)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Total PFHxS (3)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFHpS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
di-PFOS (5)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
mono-PFOS (5)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
L-PFOS (5)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)

Test	Result	Unit	Method Reference
Total PFOS (7)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Sum PFHxS+PFOS (1)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFNS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFDS	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
Perfluoroalkylcarboxylic acids			
PFBA	NR	μg/L	AsureQuality Method (LC-MS/MS)
PFPeA	0.46	μg/L	AsureQuality Method (LC-MS/MS)
PFHxA	0.28	μg/L	AsureQuality Method (LC-MS/MS)
PFHpA	0.045	μg/L	AsureQuality Method (LC-MS/MS)
PFOA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFNA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFDA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFUnDA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFDoDA	NR	μg/L	AsureQuality Method (LC-MS/MS)
PFTrDA	NR	μg/L	AsureQuality Method (LC-MS/MS)
PFTeDA	NR	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamides			
PFOSA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
NEtFOSA-M	NR	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSA-M	NR	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamidoacetic acids			
NEtFOSAA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSAA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamidoethanols			
NEtFOSE-M	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSE-M	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
Telomere Sulfonic acids			
4:2 FTS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
6:2 FTS	0.050	μg/L	AsureQuality Method (LC-MS/MS)
8:2 FTS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Internal Standards			
M3PFBS	83	%	AsureQuality Method (LC-MS/MS)
M3PFHxS	88	%	AsureQuality Method (LC-MS/MS)
M8PFOS	106	%	AsureQuality Method (LC-MS/MS)
M4PFBA	NR	%	AsureQuality Method (LC-MS/MS)
M5PFPeA	72	%	AsureQuality Method (LC-MS/MS)
M5PFHxA	74	%	AsureQuality Method (LC-MS/MS)
MPFHpA	84	%	AsureQuality Method (LC-MS/MS)
M8PFOA	42	%	AsureQuality Method (LC-MS/MS)
M9PFNA	82	%	AsureQuality Method (LC-MS/MS)
M6PFDA	123	%	AsureQuality Method (LC-MS/MS)
M7PFUnDA	205 (R)	%	AsureQuality Method (LC-MS/MS)
MPFDoDA	NR	%	AsureQuality Method (LC-MS/MS)
MPFTeDA	NR	%	AsureQuality Method (LC-MS/MS)
MPFOSA	104	%	AsureQuality Method (LC-MS/MS)
DNEtFOSA	NR	%	AsureQuality Method (LC-MS/MS)
DNMeFOSA	NR	%	AsureQuality Method (LC-MS/MS)
DNEtFOSAA	162 (R)	%	AsureQuality Method (LC-MS/MS)
DNMeFOSAA	139	%	AsureQuality Method (LC-MS/MS)
	**	.*	

Test	Result	Unit	Method Reference
DNEtFOSE	236 (R)	%	AsureQuality Method (LC-MS/MS)
DNMeFOSE	153 (R)	%	AsureQuality Method (LC-MS/MS)
M4:2FTS	80	%	AsureQuality Method (LC-MS/MS)
M6:2FTS	69	%	AsureQuality Method (LC-MS/MS)
M8:2FTS	97	%	AsureQuality Method (LC-MS/MS)

R = Recovery outside method limits

QC Results

Blank

Relates to sample(s) 18-213406-1, 18-213406-3, 18-213406-8

est	Result	Unit	Method Reference
oly- and Perfluorinated Alkyl Substances (PFAS) in Wate	er		
Perfluoroalkylsulfonic acids			
PFPrS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFBS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFPeS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
di-PFHxS (1)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
mono-PFHxS (1)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
L-PFHxS (1)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Total PFHxS (3)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFHpS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
di-PFOS (5)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
mono-PFOS (5)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
L-PFOS (5)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Total PFOS (7)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Sum PFHxS+PFOS (1)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFNS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFDS	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
Perfluoroalkylcarboxylic acids			
PFBA	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
PFPeA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFHxA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFHpA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFOA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFNA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFDA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFUnDA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFDoDA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFTrDA	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
PFTeDA	NR	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamides			
PFOSA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
NEtFOSA-M	NR	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSA-M	NR	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamidoacetic acids			
NEtFOSAA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)

st	Result	Unit	Method Reference
NMeFOSAA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamidoethanols			
NEtFOSE-M	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSE-M	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
Telomere Sulfonic acids			
4:2 FTS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
6:2 FTS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
8:2 FTS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Internal Standards			
M3PFBS	89	%	AsureQuality Method (LC-MS/MS)
M3PFHxS	92	%	AsureQuality Method (LC-MS/MS)
M8PFOS	90	%	AsureQuality Method (LC-MS/MS)
M4PFBA	88	%	AsureQuality Method (LC-MS/MS)
M5PFPeA	87	%	AsureQuality Method (LC-MS/MS)
M5PFHxA	89	%	AsureQuality Method (LC-MS/MS)
MPFHpA	89	%	AsureQuality Method (LC-MS/MS)
M8PFOA	89	%	AsureQuality Method (LC-MS/MS)
M9PFNA	86	%	AsureQuality Method (LC-MS/MS)
M6PFDA	92	%	AsureQuality Method (LC-MS/MS)
M7PFUnDA	138	%	AsureQuality Method (LC-MS/MS)
MPFDoDA	285 (R)	%	AsureQuality Method (LC-MS/MS)
MPFTeDA	NR	%	AsureQuality Method (LC-MS/MS)
MPFOSA	95	%	AsureQuality Method (LC-MS/MS)
DNEtFOSA	NR	%	AsureQuality Method (LC-MS/MS)
DNMeFOSA	NR	%	AsureQuality Method (LC-MS/MS)
DNEtFOSAA	130	%	AsureQuality Method (LC-MS/MS)
DNMeFOSAA	104	%	AsureQuality Method (LC-MS/MS)
DNEtFOSE	235 (R)	%	AsureQuality Method (LC-MS/MS)
DNMeFOSE	150	%	AsureQuality Method (LC-MS/MS)
M4:2FTS	82	%	AsureQuality Method (LC-MS/MS)
M6:2FTS	84	%	AsureQuality Method (LC-MS/MS)
M8:2FTS	73	%	AsureQuality Method (LC-MS/MS)

R = Recovery outside method limits

Relates to sample(s) 18-213406-2, 18-213406-5, 18-213406-6, 18-213406-7

Test	Result	Unit	Method Reference
Poly- and Perfluorinated Alkyl Substances (PFAS) in Water - High Level		
Perfluoroalkylsulfonic acids			
PFPrS	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
PFBS	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
PFPeS	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
di-PFHxS (1)	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
mono-PFHxS (1)	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
L-PFHxS (1)	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
Total PFHxS (3)	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
PFHpS	<0.10	μg/L	AsureQuality Method (LC-MS/MS)

est	Result	Unit	Method Reference
di-PFOS (5)	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
mono-PFOS (5)	<0.10	µg/L	AsureQuality Method (LC-MS/MS)
L-PFOS (5)	<0.10	µg/L	AsureQuality Method (LC-MS/MS)
Total PFOS (7)	<0.10	µg/L	AsureQuality Method (LC-MS/MS)
Sum PFHxS+PFOS (1)	<0.10	µg/L	AsureQuality Method (LC-MS/MS)
PFNS	<0.10	µg/L	AsureQuality Method (LC-MS/MS)
PFDS	<0.10	µg/L	AsureQuality Method (LC-MS/MS)
Perfluoroalkylcarboxylic acids		F-9-	
PFBA	<0.20	μg/L	AsureQuality Method (LC-MS/MS)
PFPeA	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
PFHxA	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
PFHpA	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
PFOA	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
PFNA	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
PFDA	<0.10	µg/L	AsureQuality Method (LC-MS/MS)
PFUnDA	<0.10	µg/L	AsureQuality Method (LC-MS/MS)
PFDoDA	<1.0	μg/L	AsureQuality Method (LC-MS/MS)
PFTrDA	<5.0	μg/L	AsureQuality Method (LC-MS/MS)
PFTeDA	<5.0	µg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamides		F-9-	
PFOSA	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
NEtFOSA-M	<0.20	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSA-M	<1.0	µg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamidoacetic acids		13	
NEtFOSAA	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSAA	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamidoethanols		13	
NEtFOSE-M	<1.0	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSE-M	<1.0	μg/L	AsureQuality Method (LC-MS/MS)
Telomere Sulfonic acids			
4:2 FTS	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
6:2 FTS	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
8:2 FTS	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
Internal Standards			
M3PFBS	103	%	AsureQuality Method (LC-MS/MS)
M3PFHxS	105	%	AsureQuality Method (LC-MS/MS)
M8PFOS	107	%	AsureQuality Method (LC-MS/MS)
M4PFBA	104	%	AsureQuality Method (LC-MS/MS)
M5PFPeA	105	%	AsureQuality Method (LC-MS/MS)
M5PFHxA	100	%	AsureQuality Method (LC-MS/MS)
MPFHpA	103	%	AsureQuality Method (LC-MS/MS)
M8PFOA	101	%	AsureQuality Method (LC-MS/MS)
M9PFNA	108	%	AsureQuality Method (LC-MS/MS)
M6PFDA	104	%	AsureQuality Method (LC-MS/MS)
M7PFUnDA	111	%	AsureQuality Method (LC-MS/MS)
MPFDoDA	104	%	AsureQuality Method (LC-MS/MS)
	-	/0	,,

Test .	Result	Unit	Method Reference
MPFTeDA	51	%	AsureQuality Method (LC-MS/MS)
MPFOSA	108	%	AsureQuality Method (LC-MS/MS)
DNEtFOSA	104	%	AsureQuality Method (LC-MS/MS)
DNMeFOSA	108	%	AsureQuality Method (LC-MS/MS)
DNEtFOSAA	102	%	AsureQuality Method (LC-MS/MS)
DNMeFOSAA	98	%	AsureQuality Method (LC-MS/MS)
DNEtFOSE	103	%	AsureQuality Method (LC-MS/MS)
DNMeFOSE	106	%	AsureQuality Method (LC-MS/MS)
M4:2FTS	102	%	AsureQuality Method (LC-MS/MS)
M6:2FTS	106	%	AsureQuality Method (LC-MS/MS)
M8:2FTS	107	%	AsureQuality Method (LC-MS/MS)

Relates to sample(s) 18-213406-2, 18-213406-5, 18-213406-6, 18-213406-7

est	Result	Unit	Method Reference
oly- and Perfluorinated Alkyl Substances (PFAS) in Water			
Perfluoroalkylsulfonic acids			
PFPrS	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PFBS	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PFPeS	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
di-PFHxS (1)	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
mono-PFHxS (1)	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
L-PFHxS (1)	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
Total PFHxS (3)	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
PFHpS	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
di-PFOS (5)	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
mono-PFOS (5)	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
L-PFOS (5)	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
Total PFOS (7)	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
Sum PFHxS+PFOS (1)	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
PFNS	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PFDS	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
Perfluoroalkylcarboxylic acids			
PFBA	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
PFPeA	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
PFHxA	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PFHpA	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PFOA	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
PFNA	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PFDA	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PFUnDA	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PFDoDA	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
PFTrDA	<1.0	μg/L	AsureQuality Method (LC-MS/MS)
PFTeDA	<1.0	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamides			
PFOSA	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
NEtFOSA-M	<0.10	μg/L	AsureQuality Method (LC-MS/MS)

st	Result	Unit	Method Reference
NMeFOSA-M	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamidoacetic acids			
NEtFOSAA	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSAA	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamidoethanols			
NEtFOSE-M	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSE-M	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
Telomere Sulfonic acids			
4:2 FTS	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
6:2 FTS	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
8:2 FTS	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
Internal Standards			
M3PFBS	107	%	AsureQuality Method (LC-MS/MS)
M3PFHxS	107	%	AsureQuality Method (LC-MS/MS)
M8PFOS	110	%	AsureQuality Method (LC-MS/MS)
M4PFBA	109	%	AsureQuality Method (LC-MS/MS)
M5PFPeA	107	%	AsureQuality Method (LC-MS/MS)
M5PFHxA	104	%	AsureQuality Method (LC-MS/MS)
MPFHpA	108	%	AsureQuality Method (LC-MS/MS)
M8PFOA	100	%	AsureQuality Method (LC-MS/MS)
M9PFNA	114	%	AsureQuality Method (LC-MS/MS)
M6PFDA	110	%	AsureQuality Method (LC-MS/MS)
M7PFUnDA	103	%	AsureQuality Method (LC-MS/MS)
MPFDoDA	100	%	AsureQuality Method (LC-MS/MS)
MPFTeDA	39	%	AsureQuality Method (LC-MS/MS)
MPFOSA	109	%	AsureQuality Method (LC-MS/MS)
DNEtFOSA	97	%	AsureQuality Method (LC-MS/MS)
DNMeFOSA	95	%	AsureQuality Method (LC-MS/MS)
DNEtFOSAA	106	%	AsureQuality Method (LC-MS/MS)
DNMeFOSAA	110	%	AsureQuality Method (LC-MS/MS)
DNEtFOSE	104	%	AsureQuality Method (LC-MS/MS)
DNMeFOSE	102	%	AsureQuality Method (LC-MS/MS)
M4:2FTS	108	%	AsureQuality Method (LC-MS/MS)
M6:2FTS	111	%	AsureQuality Method (LC-MS/MS)
M8:2FTS	103	%	AsureQuality Method (LC-MS/MS)

Relates to sample(s) 18-213406-4

Test	Result	Unit	Method Reference	
Poly- and Perfluorinated Alkyl Substances (PF	FAS) in Water			
Perfluoroalkylsulfonic acids				
PFPrS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)	
PFBS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)	
PFPeS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)	
di-PFHxS (1)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)	
mono-PFHxS (1)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)	
L-PFHxS (1)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)	

est	Result	Unit	Method Reference
Total PFHxS (3)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFHpS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
di-PFOS (5)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
mono-PFOS (5)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
L-PFOS (5)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Total PFOS (7)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Sum PFHxS+PFOS (1)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFNS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFDS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Perfluoroalkylcarboxylic acids			
PFBA	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
PFPeA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFHxA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFHpA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFOA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFNA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFDA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFUnDA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFDoDA	<0.025	μg/L	AsureQuality Method (LC-MS/MS)
PFTrDA	<0.025	μg/L	AsureQuality Method (LC-MS/MS)
PFTeDA	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamides			
PFOSA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
NEtFOSA-M	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSA-M	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamidoacetic acids			
NEtFOSAA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSAA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamidoethanols			
NEtFOSE-M	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSE-M	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
Telomere Sulfonic acids			
4:2 FTS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
6:2 FTS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
8:2 FTS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Internal Standards			
M3PFBS	115	%	AsureQuality Method (LC-MS/MS)
M3PFHxS	112	%	AsureQuality Method (LC-MS/MS)
M8PFOS	113	%	AsureQuality Method (LC-MS/MS)
M4PFBA	125	%	AsureQuality Method (LC-MS/MS)
M5PFPeA	114	%	AsureQuality Method (LC-MS/MS)
M5PFHxA	121	%	AsureQuality Method (LC-MS/MS)
MPFHpA	115	%	AsureQuality Method (LC-MS/MS)
M8PFOA	119	%	AsureQuality Method (LC-MS/MS)
M9PFNA	117	%	AsureQuality Method (LC-MS/MS)
M6PFDA	114	%	AsureQuality Method (LC-MS/MS)

est	Result	Unit	Method Reference
M7PFUnDA	106	%	AsureQuality Method (LC-MS/MS)
MPFDoDA	98	%	AsureQuality Method (LC-MS/MS)
MPFTeDA	136	%	AsureQuality Method (LC-MS/MS)
MPFOSA	118	%	AsureQuality Method (LC-MS/MS)
DNEtFOSA	119	%	AsureQuality Method (LC-MS/MS)
DNMeFOSA	134	%	AsureQuality Method (LC-MS/MS)
DNEtFOSAA	120	%	AsureQuality Method (LC-MS/MS)
DNMeFOSAA	131	%	AsureQuality Method (LC-MS/MS)
DNEtFOSE	123	%	AsureQuality Method (LC-MS/MS)
DNMeFOSE	133	%	AsureQuality Method (LC-MS/MS)
M4:2FTS	120	%	AsureQuality Method (LC-MS/MS)
M6:2FTS	130	%	AsureQuality Method (LC-MS/MS)
M8:2FTS	126	%	AsureQuality Method (LC-MS/MS)

Analysis Summary

Wellington Laboratory

Analysis	Method	Accreditation	Authorised by
Poly- and Perfluorinated Alkyl Substances (I	PFAS) in Water		
DX-PFCS01, 03-SUITE_B	AsureQuality Method (LC-MS/MS)	IANZ	Cameron Evans

di-PFHxS (1) = Concentration determined using a branched di-PFHxS isomer standard (399>80 transition)

mono-PFHxS (1) = Concentration determined using a branched mono-PFHxS isomer standard (399>80 transition)

L-PFHxS (1) = Concentration determined using the linear PFHxS isomer standard (399>80 transition)

Total PFHxS (3) = The numerical sum of di-PFHxS (1), mono-PFHxS (1), and L-PFHxS (1)

di-PFOS (5) = Concentration determined using a branched di-PFOS isomer standard (499>80 transition)

mono-PFOS (5) = Concentration determined using a branched mono-PFOS isomer standard (499>80 transition)

L-PFOS (5) = Concentration determined using the linear PFOS isomer standard (499>230 transition)

Total PFOS (7) = The numerical sum of di-PFOS (5), mono-PFOS (5), and L-PFOS (5)

Sum PFHxS+PFOS (1) = The numerical sum of Total PFHxS (3) and Total PFOS (7)

For all Totals, where a component is detected below the LOR, the value of zero is used in the calculation of the sum. The result represents the lower-bound concentration present in the sample

Reported results are corrected for internal standard recovery

Any tests marked with * are not accredited for specific matrices or analytes.

Results that are prefixed with '<' indicate the lowest level at which the analyte can be reported, and that in this case the analyte was not observed above this limit.

NR = Not Reportable

Cameron Evans

Gomen Even

Scientist

Accreditation



AsureQuality Reference: 18-213406 Report Issued: 13-Sep-2018

Appendix

Analyte LOR Summary

Analyte LOR (µg/L)

Listing applies to samples: 18-213406-2, 18-213406-5, 18-213406-6, 18-213406-7

Perfluoroalkylsulfonic acids

PFPrS*	0.0010
PFBS*	0.0010
PFPeS*	0.0010
di-PFHxS (1)*	0.0010
mono-PFHxS (1)*	0.0010
L-PFHxS (1)*	0.0010
Total PFHxS (3)*	0.0010
PFHpS*	0.0010
di-PFOS (5)*	0.0010
mono-PFOS (5)*	0.0010
L-PFOS (5)*	0.0010
Total PFOS (7)*	0.0010
Sum PFHxS+PFOS (1)*	0.0010
PFNS*	0.0010
PFDS*	0.0010

Perfluoroalkylcarboxylic acids

•	
PFBA*	0.0010
PFPeA*	0.0010
PFHxA*	0.0010
PFHpA*	0.0010
PFOA*	0.0010
PFNA*	0.0010
PFDA*	0.0010
PFUnDA*	0.0010
PFDoDA*	0.0010
PFTrDA*	0.0010
PFTeDA*	0.0010

Perfluorooctanesulfonamides

 PFOSA*
 0.0010

 NEtFOSA-M*
 0.0010

 NMeFOSA-M*
 0.0010

Perfluorooctanesulfonamidoacetic acids

 NEtFOSAA*
 0.0010

 NMeFOSAA*
 0.0010

Perfluorooctanesulfonamidoethanols

NEtFOSE-M* 0.0010 NMeFOSE-M* 0.0010

Telomere Sulfonic acids

4:2 FTS* 0.0010 6:2 FTS* 0.0010 8:2 FTS* 0.0010

Listing applies to samples: 18-213406-1, 18-213406-3, 18-213406-4, 18-213406-8

 PFPrS
 0.0010

 PFBS
 0.0010

 PFPeS
 0.0010

di-PFHxS (1)	0.0010
mono-PFHxS (1)	0.0010
L-PFHxS (1)	0.0010
Total PFHxS (3)	0.0010
PFHpS	0.0010
di-PFOS (5)	0.0010
mono-PFOS (5)	0.0010
L-PFOS (5)	0.0010
Total PFOS (7)	0.0010
Sum PFHxS+PFOS (1)	0.0010
PFNS	0.0010
PFDS	0.0010
Perfluoroalkylcarboxylic acids	
DED A	ND

PFBA NR PFPeA 0.0010 PFHxA 0.0010 PFHpA 0.0010 PFOA 0.0010 PFNA 0.0010 PFDA 0.0010 PFUnDA 0.0010 PFDoDA NR PFTrDA NR PFTeDA NR

Perfluorooctanesulfonamides

PFOSA 0.0010 NEtFOSA-M NR NMeFOSA-M NR

Perfluorooctanesulfonamidoacetic acids

NEtFOSAA 0.0010 NMeFOSAA 0.0010

Perfluorooctanesulfonamidoethanols

NEtFOSE-M 0.0010 NMeFOSE-M 0.0010

Telomere Sulfonic acids

4:2 FTS 0.0010 6:2 FTS 0.0010 8:2 FTS 0.0010

Analyte Definitions

Poly- and Perfluorinated Alkyl Substances (PFAS) in Water - AsureQuality Method (LC-MS/MS)

Full Name

Listing applies to samples: 18-213406-2, 18-213406-5, 18-213406-6, 18-213406-7

Perfluoroalkylsulfonic acids

PFPrS* Perfluoro-1-propanesulfonic acid PFBS* Perfluoro-1-butanesulfonic acid PFPeS* Perfluoro-1-pentanesulfonic acid

di-PFHxS (1)* Total Perfluorodimethylbutane sulfonic acids mono-PFHxS (1)* Total Perfluoromethylpentane sulfonic acids L-PFHxS (1)* Linear Perfluorohexanesulfonic acid PFHpS* Perfluoro-1-heptanesulfonic acid

di-PFOS (5)* Total Perfluorodimethylhexane sulfonic acids mono-PFOS (5)* Total Perfluoromethylheptane sulfonic acids

Analyte Full Name

L-PFOS (5)* Linear Perfluorooctanesulfonic acid
PFNS* Perfluoro-1-nonanesulfonic acid
PFDS* Perfluoro-1-decanesulfonic acid

Perfluoroalkylcarboxylic acids

PFBA* Perfluoro-n-butanoic acid PFPeA* Perfluoro-n-pentanoic acid PFHxA* Perfluoro-n-hexanoic acid PFHpA* Perfluoro-n-heptanoic acid PFOA* Perfluoro-n-octanoic acid PFNA* Perfluoro-n-nonanoic acid PFDA* Perfluoro-n-decanoic acid PFUnDA* Perfluoro-n-undecanoic acid PFDoDA* Perfluoro-n-dodecanoic acid PFTrDA* Perfluoro-n-tridecanoic acid PFTeDA* Perfluoro-n-tetradecanoic acid

Perfluorooctanesulfonamides

PFOSA* Perfluoro-1-octanesulfonamide

NEtFOSA-M* N-ethylperfluoro-1-octanesulfonamide

NMeFOSA-M* N-methylperfluoro-1-octanesulfonamide

Perfluorooctanesulfonamidoacetic acids

NEtFOSAA* N-ethylperfluoro-1-octanesulfonamidoacetic acid
NMeFOSAA* N-methylperfluoro-1-octanesulfonamidoacetic acid

Perfluorooctanesulfonamidoethanols

NEtFOSE-M*

2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol

NMeFOSE-M*

2-(N-methylperfluoro-1-octanesulfonamido)-ethanol

Telomere Sulfonic acids

4:2 FTS* 1H,1H,2H,2H-perfluoro-1-hexanesulfonic acid
6:2 FTS* 1H,1H,2H,2H-perfluoro-1-octanesulfonic acid
8:2 FTS* 1H,1H,2H,2H-perfluoro-1-decanesulfonic acid

Internal Standards

M9PFNA*

M3PFBS* Perfluoro-1-[2,3,4-13C3]butanesulfonic acid M3PFHxS* Perfluoro-1-[1,2,3-13C3]hexanesulfonic acid M8PFOS* Perfluoro-1-[13C8]octanesulfonic acid M4PFBA* Perfluoro-n-[1,2,3,4-13C4]butanoic acid M5PFPeA* Perfluoro-n-[1,2,3,4,5-13C5]pentanoic acid M5PFHxA* Perfluoro-n-[1,2,3,4,6-13C5]hexanoic acid MPFHpA* Perfluoro-n-[-1,2,3,4-13C4]heptanoic acid M8PFOA* Perfluoro-n-[13C8]octanoic acid

M6PFDA* Perfluoro-n-[1,2,3,4,5,6-13C6]decanoic acid
M7PFUnDA* Perfluoro-n-[1,2,3,4,5,6,7-13C7]undecanoic acid

MPFDoDA* Perfluoro-n-[1,2-13C2]dodecanoic acid MPFTeDA* Perfluoro-n-[1,2-13C2]tetradecanoic acid MPFOSA* Perfluoro-1-[13C8]octanesulfonamide DNEtFOSA* N-ethyl-D5-perfluoro-1-octanesulfonamide DNMeFOSA* N-methyl-D3-perfluoro-1-octanesulfonamide DNEtFOSAA* N-ethyl-D5-perfluoro-1-octanesulfonamidoacetic acid DNMeFOSAA* N-methyl-D3-perfluoro-1-octanesulfonamidoacetic acid DNFtFOSF* 2-(N-ethyl-D5-perfluoro-1-octanesulfonamido)ethan-D4-ol DNMeFOSE* 2-(N-methyl-D3-perfluoro-1-octanesulfonamido)ethan-D4-ol M4:2FTS* 1H,1H,2H,2H-perfluoro-1-[1,2-13C2]-hexane sulfonic acid M6:2FTS 1H,1H,2H,2H-perfluoro-1-[1,2-13C2]-octane sulfonic acid M8:2FTS* 1H,1H,2H,2H-perfluoro-1-[1,2-13C2]-decane sulfonic acid

Perfluoro-n-[13C9]nonanoic acid

AsureQuality Reference: 18-213406 Report Issued: 13-Sep-2018

Analyte Full Name

Listing applies to samples: 18-213406-1, 18-213406-3, 18-213406-4, 18-213406-8

Perfluoroalkylsulfonic acids

PFPrS Perfluoro-1-propanesulfonic acid
PFBS Perfluoro-1-butanesulfonic acid
PFPeS Perfluoro-1-pentanesulfonic acid

di-PFHxS (1)

Total Perfluorodimethylbutane sulfonic acids
mono-PFHxS (1)

Total Perfluoromethylpentane sulfonic acids
L-PFHxS (1)

Linear Perfluorohexanesulfonic acid

PFHpS

Perfluoro-1-heptanesulfonic acid

di-PFOS (5)

Total Perfluorodimethylhexane sulfonic acids
mono-PFOS (5)

Total Perfluoromethylheptane sulfonic acids
L-PFOS (5)

Linear Perfluoroctanesulfonic acid

PFNS

Perfluoro-1-nonanesulfonic acid

PFDS

Perfluoro-1-decanesulfonic acid

Perfluoroalkylcarboxylic acids

PFBA Perfluoro-n-butanoic acid PFPeA Perfluoro-n-pentanoic acid PFHxA Perfluoro-n-hexanoic acid PFHpA Perfluoro-n-heptanoic acid PFOA Perfluoro-n-octanoic acid PFNA Perfluoro-n-nonanoic acid PFDA Perfluoro-n-decanoic acid PFUnDA Perfluoro-n-undecanoic acid **PFDoDA** Perfluoro-n-dodecanoic acid PFTrDA Perfluoro-n-tridecanoic acid PFTeDA Perfluoro-n-tetradecanoic acid

Perfluorooctanesulfonamides

PFOSA Perfluoro-1-octanesulfonamide

NEtFOSA-M N-ethylperfluoro-1-octanesulfonamide

NMeFOSA-M N-methylperfluoro-1-octanesulfonamide

Perfluorooctanesulfonamidoacetic acids

 NEtFOSAA
 N-ethylperfluoro-1-octanesulfonamidoacetic acid

 NMeFOSAA
 N-methylperfluoro-1-octanesulfonamidoacetic acid

Perfluorooctanesulfonamidoethanols

NEtFOSE-M 2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol
NMeFOSE-M 2-(N-methylperfluoro-1-octanesulfonamido)-ethanol

Telomere Sulfonic acids

4:2 FTS 1H,1H,2H,2H-perfluoro-1-hexanesulfonic acid
6:2 FTS 1H,1H,2H,2H-perfluoro-1-octanesulfonic acid
8:2 FTS 1H,1H,2H,2H-perfluoro-1-decanesulfonic acid

Internal Standards

M3PFBS Perfluoro-1-[2,3,4-13C3]butanesulfonic acid M3PFHxS Perfluoro-1-[1,2,3-13C3]hexanesulfonic acid M8PFOS Perfluoro-1-[13C8]octanesulfonic acid M4PFBA Perfluoro-n-[1,2,3,4-13C4]butanoic acid M5PFPeA Perfluoro-n-[1,2,3,4,5-13C5]pentanoic acid M5PFHxA Perfluoro-n-[1,2,3,4,6-13C5]hexanoic acid MPFHpA Perfluoro-n-[-1,2,3,4-13C4]heptanoic acid M8PFOA Perfluoro-n-[13C8]octanoic acid M9PFNA Perfluoro-n-[13C9]nonanoic acid

M6PFDAPerfluoro-n-[1,2,3,4,5,6-13C6]decanoic acidM7PFUnDAPerfluoro-n-[1,2,3,4,5,6,7-13C7]undecanoic acidMPFDoDAPerfluoro-n-[1,2-13C2]dodecanoic acidMPFTeDAPerfluoro-n-[1,2-13C2]tetradecanoic acid

AsureQuality Reference: 18-213406 Report Issued: 13-Sep-2018

Analyte Full Name

MPFOSA Perfluoro-1-[13C8]octanesulfonamide DNEtFOSA N-ethyl-D5-perfluoro-1-octanesulfonamide DNMeFOSA N-methyl-D3-perfluoro-1-octanesulfonamide DNEtFOSAA N-ethyl-D5-perfluoro-1-octanesulfonamidoacetic acid DNMeFOSAA N-methyl-D3-perfluoro-1-octanesulfonamidoacetic acid DNEtFOSE 2-(N-ethyl-D5-perfluoro-1-octanesulfonamido)ethan-D4-ol DNMeFOSE 2-(N-methyl-D3-perfluoro-1-octanesulfonamido)ethan-D4-ol M4:2FTS 1H,1H,2H,2H-perfluoro-1-[1,2-13C2]-hexane sulfonic acid M6:2FTS 1H,1H,2H,2H-perfluoro-1-[1,2-13C2]-octane sulfonic acid M8:2FTS 1H,1H,2H,2H-perfluoro-1-[1,2-13C2]-decane sulfonic acid

Any tests marked with * are not accredited for specific matrices or analytes.

LOR = Limit of Reporting LOD = Limit of Detection NR = Not Reportable



Company Name: * Taranaki Regional Council Contact Person: * Callum Mackenzie Email: * callum.mackenzie@trc.govt.nz Contact Phone No.: * 06 765 7127 Address: Report ing Details Report Results To: * sean.hudgens@aecom.com Extra Copies To: Report each sample separately? * If multiple samples are listed below, tick yes to receive an Individual CoA for each sample. Sample Sent By (Name): * Rebecca Joyce Signed By: *			AsureQuation 1C Quadrant Lower Hutt New Zealant Tel: +64 4 5	t Drive, Waiwhe 5010 d	tu			
Submission Ref.: Purchase Order No.: 7349 Contract/Quote No.:		☐ Quarantin☐ Return sar NOTE: Samples AQ to compo Are samples Water sample	spatched: nple(s) dispatched in: e (include a copy of the MPI I nple(s) after analysis (Co will be discarded/returned 8 w site samples? nazardous to health?* es submitted?*	mport Permit/Transfer For urier fees apply) eeks after reporting unless Yes		Urgent S Half quo Quarter	Details* Furn-around-time ervice (please select for pited TAT (50% surce quoted TAT (100% int testing, please contributes to confirm available	com options below, charge) 6 surcharge) act AQ prior to
Sample Type Sample Name* (Type of product/substance (unique sample identifier) E.g., Potable Water, Soll, Biota Pro		substance/material	terial (used to determ , Apple, Cow (additional sample information, to appear on report) (used to determ		Sampled Date (used to determine holding time, if applicat	(test or company	quirements* nds to be tested for)	AQ Ref.
GW3	Groun	dwater	Ground	water	22/08/18	DX - F	PFCS01	
GW5			1					
GW8A								
GW10								
GW46								
GW47			•				V	
Control #2	_				1			
Required information								

Issue Date: February 2018

Page 1 of 1 QA Controlled Document AsureQuality Limited | 1C Quadrant Drive | Waiwhetu | Lower Hutt 5010 | Wellington | New Zealand PO Box 31242 | Lower Hutt 5040 | Wellington | New Zealand t. +64 4 570 8800 | e. cswellington@asurequality.com | w. www.asurequality.com Global Experts in Food Assurance

Certificate of Analysis

Final Report

Sean Hudgens
AECOM Consulting Services - Wellington
PO Box 27277
Wellington 6141
New Zealand

PO Number: 73494

Submitted by:
Taranaki Regional Council
Private Bag 713
Stratford 4352
New Zealand

Report Issued: 19-Sep-2018 AsureQuality Reference: 18-213132 Sample(s) Received: 24-Aug-2018 07:45

Results

The tests were performed on the samples as received.

ustomer Sample Name: GWOMI			AsureQuality ID: 18-2131
ample Description: Groundwater			
ample Condition: Acceptable	Sampled Date: 23-Aug-2018		
Test	Result	Unit	Method Reference
oly- and Perfluorinated Alkyl Substances (P	FAS) in Water		
Perfluoroalkylsulfonic acids			
PFPrS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFBS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFPeS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
di-PFHxS (1)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
mono-PFHxS (1)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
L-PFHxS (1)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Total PFHxS (3)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFHpS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
di-PFOS (5)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
mono-PFOS (5)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
L-PFOS (5)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Total PFOS (7)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Sum PFHxS+PFOS (1)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFNS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFDS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Perfluoroalkylcarboxylic acids			
PFBA	0.039	μg/L	AsureQuality Method (LC-MS/MS)
PFPeA	0.15	μg/L	AsureQuality Method (LC-MS/MS)
PFHxA	0.15	μg/L	AsureQuality Method (LC-MS/MS)
PFHpA	0.032	μg/L	AsureQuality Method (LC-MS/MS)
PFOA	0.0046	μg/L	AsureQuality Method (LC-MS/MS)
PFNA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFDA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFUnDA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFDoDA	<0.025	μg/L	AsureQuality Method (LC-MS/MS)
PFTrDA	<0.025	μg/L	AsureQuality Method (LC-MS/MS)

AsureQuality has used reasonable skill, care, and effort to provide an accurate analysis of the sample(s) which form(s) the subject of this report. However, the accuracy of this analysis is reliant on, and subject to, the sample(s) provided by you and your responsibility as to transportation of the sample(s). AsureQuality's standard terms of business apply to the analysis set out in this report.

Test	Result	Unit	Method Reference
PFTeDA	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamides			
PFOSA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
NEtFOSA-M	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSA-M	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamidoacetic acids			
NEtFOSAA	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSAA	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamidoethanols			
NEtFOSE-M	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSE-M	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
Telomere Sulfonic acids			
4:2 FTS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
6:2 FTS	0.014	μg/L	AsureQuality Method (LC-MS/MS)
8:2 FTS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Internal Standards			
M3PFBS	105	%	AsureQuality Method (LC-MS/MS)
M3PFHxS	98	%	AsureQuality Method (LC-MS/MS)
M8PFOS	111	%	AsureQuality Method (LC-MS/MS)
M4PFBA	72	%	AsureQuality Method (LC-MS/MS)
M5PFPeA	100	%	AsureQuality Method (LC-MS/MS)
M5PFHxA	95	%	AsureQuality Method (LC-MS/MS)
MPFHpA	104	%	AsureQuality Method (LC-MS/MS)
M8PFOA	92	%	AsureQuality Method (LC-MS/MS)
M9PFNA	104	%	AsureQuality Method (LC-MS/MS)
M6PFDA	104	%	AsureQuality Method (LC-MS/MS)
M7PFUnDA	108	%	AsureQuality Method (LC-MS/MS)
MPFDoDA	101	%	AsureQuality Method (LC-MS/MS)
MPFTeDA	49	%	AsureQuality Method (LC-MS/MS)
MPFOSA	89	%	AsureQuality Method (LC-MS/MS)
DNEtFOSA	74	%	AsureQuality Method (LC-MS/MS)
DNMeFOSA	80	%	AsureQuality Method (LC-MS/MS)
DNEtFOSAA	97	%	AsureQuality Method (LC-MS/MS)
DNMeFOSAA	103	%	AsureQuality Method (LC-MS/MS)
DNEtFOSE	81	%	AsureQuality Method (LC-MS/MS)
DNMeFOSE	91		AsureQuality Method (LC-MS/MS)
		%	, ,
M4:2FTS	108	%	AsureQuality Method (LC-MS/MS)
M6:2FTS	80	%	AsureQuality Method (LC-MS/MS)
M8:2FTS	115	%	AsureQuality Method (LC-MS/MS)
ustomer Sample Name: GW9AA			AsureQuality ID: 18-213132
ample Description: Groundwater			
ample Condition: Acceptable	Sampled Date: 23-Aug-2018		
Test	Result	Unit	Method Reference
oly- and Perfluorinated Alkyl Substances (PF	AS) in Water		
Perfluoroalkylsulfonic acids	•		
PFPrS *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PFBS *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PFPeS *			

Test	Result	Unit	Method Reference
mono-PFHxS (1) *	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
L-PFHxS (1) *	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
Total PFHxS (3) *	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
PFHpS *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
di-PFOS (5) *	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
mono-PFOS (5) *	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
L-PFOS (5) *	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
Total PFOS (7) *	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
Sum PFHxS+PFOS (1) *	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
PFNS *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PFDS *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
Perfluoroalkylcarboxylic acids			
PFBA *	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
PFPeA *	0.10	μg/L	AsureQuality Method (LC-MS/MS)
PFHxA *	0.077	μg/L	AsureQuality Method (LC-MS/MS)
PFHpA *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PFOA *	0.020	μg/L	AsureQuality Method (LC-MS/MS)
PFNA *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PFDA *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PFUnDA *	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
PFDoDA *	<5.0	μg/L	AsureQuality Method (LC-MS/MS)
PFTrDA *	<5.0	μg/L	AsureQuality Method (LC-MS/MS)
PFTeDA *	<20	μg/L	AsureQuality Method (LC-MS/MS)
Perfluoroctanesulfonamides	120	μg/L	Addicagnity Method (EO-MO/MO)
PFOSA *	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
NEtFOSA-M *	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSA-M *	<1.0	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamidoacetic acids	-1.0	μg, L	redirection (Le Marme)
NEtFOSAA *	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSAA *	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamidoethanols		13	, , , , , , , , , , , , , , , , , , , ,
NEtFOSE-M *	<1.0	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSE-M *	<1.0	μg/L	AsureQuality Method (LC-MS/MS)
Telomere Sulfonic acids			
4:2 FTS *	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
6:2 FTS *	0.12	μg/L	AsureQuality Method (LC-MS/MS)
8:2 FTS *	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
Internal Standards			
M3PFBS *	103	%	AsureQuality Method (LC-MS/MS)
M3PFHxS *	102	%	AsureQuality Method (LC-MS/MS)
M8PFOS *	102	%	AsureQuality Method (LC-MS/MS)
M4PFBA *	90	%	AsureQuality Method (LC-MS/MS)
M5PFPeA *	93	%	AsureQuality Method (LC-MS/MS)
M5PFHxA *	106	%	AsureQuality Method (LC-MS/MS)
MPFHpA *	107	%	AsureQuality Method (LC-MS/MS)
M8PFOA *	105	%	AsureQuality Method (LC-MS/MS)
M9PFNA *	109	%	AsureQuality Method (LC-MS/MS) AsureQuality Method (LC-MS/MS)
	110	%	
M6PFDA *			AsureQuality Method (LC-MS/MS)
M7PFUnDA *	103	%	AsureQuality Method (LC-MS/MS)

Test	Result	Unit	Method Reference
MPFDoDA *	102	%	AsureQuality Method (LC-MS/MS)
MPFTeDA *	111	%	AsureQuality Method (LC-MS/MS)
MPFOSA *	104	%	AsureQuality Method (LC-MS/MS)
DNEtFOSA *	106	%	AsureQuality Method (LC-MS/MS)
DNMeFOSA *	104	%	AsureQuality Method (LC-MS/MS)
DNEtFOSAA *	90	%	AsureQuality Method (LC-MS/MS)
DNMeFOSAA *	95	%	AsureQuality Method (LC-MS/MS)
DNEtFOSE *	108	%	AsureQuality Method (LC-MS/MS)
DNMeFOSE *	103	%	AsureQuality Method (LC-MS/MS)
M4:2FTS *	120	%	AsureQuality Method (LC-MS/MS)
M6:2FTS *	115	%	AsureQuality Method (LC-MS/MS)
M8:2FTS *	124	%	AsureQuality Method (LC-MS/MS)
			· · · · · ·
Customer Sample Name: GW9B			AsureQuality ID: 18-213132-3
Sample Description: Groundwater	Occupied Date: 00 Ave 0040		
Sample Condition: Acceptable	Sampled Date: 23-Aug-2018	1114	Mathad Defenses
Test	Result	Unit	Method Reference
Poly- and Perfluorinated Alkyl Substances (PFAS	i) in Water		
Perfluoroalkylsulfonic acids			
PFPrS	<0.0010	μg/L 	AsureQuality Method (LC-MS/MS)
PFBS	<0.0010	μg/L 	AsureQuality Method (LC-MS/MS)
PFPeS	<0.0010	μg/L 	AsureQuality Method (LC-MS/MS)
di-PFHxS (1)	<0.0010	μg/L 	AsureQuality Method (LC-MS/MS)
mono-PFHxS (1)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
L-PFHxS (1)	0.0015	μg/L 	AsureQuality Method (LC-MS/MS)
Total PFHxS (3)	0.0015	μg/L	AsureQuality Method (LC-MS/MS)
PFHpS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
di-PFOS (5)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
mono-PFOS (5)	0.0018	μg/L	AsureQuality Method (LC-MS/MS)
L-PFOS (5)	0.0048	μg/L	AsureQuality Method (LC-MS/MS)
Total PFOS (7)	0.0066	μg/L	AsureQuality Method (LC-MS/MS)
Sum PFHxS+PFOS (1)	0.0081	μg/L	AsureQuality Method (LC-MS/MS)
PFNS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFDS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Perfluoroalkylcarboxylic acids			
PFBA	0.090	μg/L 	AsureQuality Method (LC-MS/MS)
PFPeA	0.33	μg/L 	AsureQuality Method (LC-MS/MS)
PFHxA	0.16	μg/L	AsureQuality Method (LC-MS/MS)
PFHpA	0.12	μg/L	AsureQuality Method (LC-MS/MS)
PFOA	0.028	μg/L	AsureQuality Method (LC-MS/MS)
PFNA	0.017	μg/L	AsureQuality Method (LC-MS/MS)
PFDA	0.016	μg/L	AsureQuality Method (LC-MS/MS)
PFUnDA	0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFDoDA	<0.025	μg/L	AsureQuality Method (LC-MS/MS)
PFTrDA	<0.025	μg/L	AsureQuality Method (LC-MS/MS)
PFTeDA	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamides			
PFOSA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
NEtFOSA-M	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)

Number Color	Test	Result	Unit	Method Reference
NEFOSAA	NMeFOSA-M	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
Number CISAN	Perfluorooctanesulfonamidoacetic acids			
NetFOSE-M	NEtFOSAA	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
NEFOSEM 4,00000 μgL AsurQuality Method (C.MS/MS) NIMEOSEM 0,00000 μgL AsurQuality Method (C.MS/MS) Tatlonense Micro and Service Micro 1,00000 μgL AsurQuality Method (C.MS/MS) 4.2 FTS 0,00010 μgL AsurQuality Method (C.MS/MS) 4.2 FTS 0,040 μgL AsurQuality Method (C.MS/MS) 4.2 FTS 0,040 μgL AsurQuality Method (C.MS/MS) 4.2 FTS 0,040 μgL AsurQuality Method (C.MS/MS) 1.0 MSP MS	NMeFOSAA	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
NAMEROSEM ***********************************	Perfluorooctanesulfonamidoethanols			
Mare Sulforia acids	NEtFOSE-M	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
4.2 FTS		<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
6.2 FTS				
Repair R				
Internal Standards			μg/L	
MSPFISS	8:2 FTS	0.049	μg/L	AsureQuality Method (LC-MS/MS)
MSPFHAS				
M8PFOS				• • • • • • • • • • • • • • • • • • • •
M4PFBA				
MSPFPEA	M8PFOS	129		AsureQuality Method (LC-MS/MS)
MSPFHxA	M4PFBA	68	%	AsureQuality Method (LC-MS/MS)
MPFHpA	M5PFPeA	100	%	AsureQuality Method (LC-MS/MS)
M8PFOA	M5PFHxA	107	%	AsureQuality Method (LC-MS/MS)
MBPFNA	MPFHpA	113	%	AsureQuality Method (LC-MS/MS)
M6PFDA	M8PFOA	96	%	AsureQuality Method (LC-MS/MS)
M7PFUnDA 113 % AsureQuality Method (LC-MS/MS) MPFDDA 86 % AsureQuality Method (LC-MS/MS) MPFTeDA 48 % AsureQuality Method (LC-MS/MS) MPFDOSA 101 % AsureQuality Method (LC-MS/MS) DNEFDOSA 62 % AsureQuality Method (LC-MS/MS) DNMEFOSA 73 % AsureQuality Method (LC-MS/MS) DNEFOSA 107 % AsureQuality Method (LC-MS/MS) DNIMEFOSA 127 % AsureQuality Method (LC-MS/MS) DNIMEFOSE 85 % AsureQuality Method (LC-MS/MS) DNIMEFOSE 94 % AsureQuality Method (LC-MS/MS) M4:2FTS 159 (R) % AsureQuality Method (LC-MS/MS) M6:2FTS 101 % AsureQuality Method (LC-MS/MS) M8:2FTS 148 % AsureQuality Method (LC-MS/MS) M8:2FTS 148 % AsureQuality Method (LC-MS/MS) MB:2FTS 101 % AsureQuality Method (LC-MS/MS) Test Result	M9PFNA	121	%	AsureQuality Method (LC-MS/MS)
MPFDDDA	M6PFDA	127	%	AsureQuality Method (LC-MS/MS)
MPFTeDA	M7PFUnDA	113	%	AsureQuality Method (LC-MS/MS)
MPFOSA	MPFDoDA	86	%	AsureQuality Method (LC-MS/MS)
DNEIFOSA 62	MPFTeDA	48	%	AsureQuality Method (LC-MS/MS)
DNMeFOSA	MPFOSA	101	%	AsureQuality Method (LC-MS/MS)
DNEIFOSAA	DNEtFOSA	62	%	AsureQuality Method (LC-MS/MS)
DNMeFOSAA	DNMeFOSA	73	%	AsureQuality Method (LC-MS/MS)
DNEIFOSE	DNEtFOSAA	107	%	AsureQuality Method (LC-MS/MS)
DNMeFOSE	DNMeFOSAA	127	%	AsureQuality Method (LC-MS/MS)
M4:2FTS	DNEtFOSE	85	%	AsureQuality Method (LC-MS/MS)
M4:2FTS 159 (R) % AsureQuality Method (LC-MS/MS) M6:2FTS 101 % AsureQuality Method (LC-MS/MS) M8:2FTS 148 % AsureQuality Method (LC-MS/MS) R = Recovery outside method limits Sustomer Sample Name: GW28 AsureQuality ID: 18-213132-4 ample Description: Groundwater ample Condition: Acceptable Sampled Date: 23-Aug-2018 Test Result Unit Method Reference Description: Groundwater AsureQuality Substances (PFAS) in Water Perfluoroalky/sulfonic acids PFPrS * < 0.050	DNMeFOSE	94	%	AsureQuality Method (LC-MS/MS)
M6:2FTS	M4:2FTS	159 (R)	%	
M8:2FTS 148 % AsureQuality Method (LC-MS/MS) R = Recovery outside method limits ustomer Sample Name: GW28 AsureQuality ID: 18-213132-4 ample Description: Groundwater ample Condition: Acceptable Sampled Date: 23-Aug-2018 Test Result Unit Method Reference oly- and Perfluorinated Alkyl Substances (PFAS) in Water Perfluoroalkylsulfonic acids PFPrS* < 0.050 µg/L AsureQuality Method (LC-MS/MS) PFBS * < 0.050 µg/L AsureQuality Method (LC-MS/MS) PFPeS * < 0.050 µg/L AsureQuality Method (LC-MS/MS) di-PFHxS (1) * < 0.010 µg/L AsureQuality Method (LC-MS/MS) mono-PFHxS (1) * < 0.010 µg/L AsureQuality Method (LC-MS/MS) L-PFHxS (1) * < 0.015 µg/L AsureQuality Method (LC-MS/MS)				
R = Recovery outside method limits sustomer Sample Name: GW28 AsureQuality ID: 18-213132-4 ample Description: Groundwater ample Condition: Acceptable Sampled Date: 23-Aug-2018 Test Result Unit Method Reference oly- and Perfluorinated Alkyl Substances (PFAS) in Water Perfluoroalkylsulfonic acids PFPrS* <0.050 µg/L AsureQuality Method (LC-MS/MS) PFPeS* <0.050 µg/L AsureQuality Method (LC-MS/MS) di-PFHxS (1)* <0.010 µg/L AsureQuality Method (LC-MS/MS) AsureQuality Method (LC-MS/MS) pg/L AsureQuality Method (LC-MS/MS) AsureQuality Method (LC-MS/MS) Description: AsureQuality Method (LC-MS/MS)				
AsureQuality ID: 18-213132-4 ample Description: Groundwater ample Condition: Acceptable Sampled Date: 23-Aug-2018 Test Result Unit Method Reference oby- and Perfluorinated Alkyl Substances (PFAS) in Water Perfluoroalkylsulfonic acids PFPrS * <0.050 µg/L AsureQuality Method (LC-MS/MS) PFBS * <0.050 µg/L AsureQuality Method (LC-MS/MS) PFPeS * <0.050 µg/L AsureQuality Method (LC-MS/MS) di-PFHxS (1) * <0.010 µg/L AsureQuality Method (LC-MS/MS) mono-PFHxS (1) * <0.010 µg/L AsureQuality Method (LC-MS/MS) L-PFHxS (1) * <0.015 µg/L AsureQuality Method (LC-MS/MS)			70	/ loan occurring mounted (25 mo/mo)
Ample Description: Groundwater Ample Condition: Acceptable Sampled Date: 23-Aug-2018 Test Result Unit Method Reference Oly- and Perfluorinated Alkyl Substances (PFAS) in Water Perfluoroalkylsulfonic acids PFPrS * <0.050 µg/L AsureQuality Method (LC-MS/MS) PFBS * <0.050 µg/L AsureQuality Method (LC-MS/MS) PFPeS * <0.050 µg/L AsureQuality Method (LC-MS/MS) PFPeS * <0.050 µg/L AsureQuality Method (LC-MS/MS) di-PFHxS (1) * <0.010 µg/L AsureQuality Method (LC-MS/MS) PHXS (1) * <0.010 µg/L AsureQuality Method (LC-MS/MS) L-PFHxS (1) * <0.015 µg/L AsureQuality Method (LC-MS/MS) AsureQuality Method (LC-MS/MS) AsureQuality Method (LC-MS/MS) AsureQuality Method (LC-MS/MS)	·			AguroQuolika ID: 40 242422 A
Fample Condition: Acceptable Sampled Date: 23-Aug-2018 Test Result Unit Method Reference oby- and Perfluorinated Alkyl Substances (PFAS) in Water Perfluoroalkylsulfonic acids PFPrS * < 0.050	·			AsuleQuality ID. 10-213132-4
Test Result Unit Method Reference oby- and Perfluorinated Alkyl Substances (PFAS) in Water Perfluoroalkylsulfonic acids PFPrS * <0.050	•	Sampled Date: 23-Aug-2018		
Perfluorinated Alkyl Substances (PFAS) in Water Perfluoroalkylsulfonic acids < 0.050	· · · · · · · · · · · · · · · · · · ·	•	Unit	Method Reference
Perfluoroalkylsulfonic acids PFPrS * <0.050			Oint	mediod Reference
PFPrS * <0.050	• • • • • • • • • • • • • • • • • • • •	in water		
PFBS * <0.050	-	-0.050	ua/l	AcuroQuality Method (LC MC/MC)
PFPeS * <0.050				
di-PFHxS (1) * <0.010 μg/L AsureQuality Method (LC-MS/MS) mono-PFHxS (1) * <0.010				
mono-PFHxS (1) * <0.010 μg/L AsureQuality Method (LC-MS/MS) L-PFHxS (1) * 0.015 μg/L AsureQuality Method (LC-MS/MS)				
L-PFHxS (1) * 0.015 μg/L AsureQuality Method (LC-MS/MS)				
Total PFHxS (3) * 0.015 μg/L AsureQuality Method (LC-MS/MS)				
	I OTAL PEHXS (3) *	0.015	μg/L	AsureQuality Method (LC-MS/MS)

Test	Result	Unit	Method Reference
PFHpS *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
di-PFOS (5) *	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
mono-PFOS (5) *	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
L-PFOS (5) *	0.022	μg/L	AsureQuality Method (LC-MS/MS)
Total PFOS (7) *	0.022	μg/L	AsureQuality Method (LC-MS/MS)
Sum PFHxS+PFOS (1) *	0.037	μg/L	AsureQuality Method (LC-MS/MS)
PFNS *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PFDS *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
Perfluoroalkylcarboxylic acids			
PFBA *	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
PFPeA *	0.074	μg/L	AsureQuality Method (LC-MS/MS)
PFHxA *	0.052	μg/L	AsureQuality Method (LC-MS/MS)
PFHpA *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PFOA *	0.018	μg/L	AsureQuality Method (LC-MS/MS)
PFNA *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PFDA *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PFUnDA *	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
PFDoDA *	<5.0	μg/L	AsureQuality Method (LC-MS/MS)
PFTrDA *	<5.0	μg/L	AsureQuality Method (LC-MS/MS)
PFTeDA *	<20	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamides			
PFOSA *	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
NEtFOSA-M *	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSA-M *	<1.0	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamidoacetic acids			
NEtFOSAA *	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSAA *	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamidoethanols			
NEtFOSE-M *	<1.0	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSE-M *	<1.0	μg/L	AsureQuality Method (LC-MS/MS)
Telomere Sulfonic acids			
4:2 FTS *	<0.10	μg/L 	AsureQuality Method (LC-MS/MS)
6:2 FTS *	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
8:2 FTS *	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
Internal Standards	400		A
M3PFBS *	103	%	AsureQuality Method (LC-MS/MS)
M3PFHxS *	102	%	AsureQuality Method (LC-MS/MS)
M8PFOS *	101	%	AsureQuality Method (LC-MS/MS)
M4PFBA *	99	%	AsureQuality Method (LC-MS/MS)
M5PFPeA *	101	%	AsureQuality Method (LC-MS/MS)
M5PFHxA *	110	%	AsureQuality Method (LC-MS/MS)
MPFHpA *	110	%	AsureQuality Method (LC-MS/MS)
M8PFOA *	102	%	AsureQuality Method (LC-MS/MS)
M9PFNA *	103	%	AsureQuality Method (LC-MS/MS)
M6PFDA *	109	%	AsureQuality Method (LC-MS/MS)
M7PFUnDA *	105	%	AsureQuality Method (LC-MS/MS)
MPFDoDA *	106	%	AsureQuality Method (LC-MS/MS)
MPFTeDA *	112	%	AsureQuality Method (LC-MS/MS)
MPFOSA *	104	%	AsureQuality Method (LC-MS/MS)

Test	Result	Unit	Method Reference
DNEtFOSA *	107	%	AsureQuality Method (LC-MS/MS)
DNMeFOSA *	103	%	AsureQuality Method (LC-MS/MS)
DNEtFOSAA *	98	%	AsureQuality Method (LC-MS/MS)
DNMeFOSAA *	96	%	AsureQuality Method (LC-MS/MS)
DNEtFOSE *	105	%	AsureQuality Method (LC-MS/MS)
DNMeFOSE *	103	%	AsureQuality Method (LC-MS/MS)
M4:2FTS *	117	%	AsureQuality Method (LC-MS/MS)
M6:2FTS *	113	%	AsureQuality Method (LC-MS/MS)
M8:2FTS *	112	%	AsureQuality Method (LC-MS/MS)
ustomer Sample Name: GW29			AsureQuality ID: 18-213132-
ample Description: Groundwater			<u> </u>
ample Condition: Acceptable	Sampled Date: 23-Aug-2018		
Test	Result	Unit	Method Reference
oly- and Perfluorinated Alkyl Substances (Pl	FAS) in Water		
Perfluoroalkylsulfonic acids			
PFPrS	0.0018	μg/L	AsureQuality Method (LC-MS/MS)
PFBS	0.011	μg/L	AsureQuality Method (LC-MS/MS)
PFPeS	0.027	μg/L	AsureQuality Method (LC-MS/MS)
di-PFHxS (1)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
mono-PFHxS (1)	0.050	μg/L	AsureQuality Method (LC-MS/MS)
L-PFHxS (1)	0.27	μg/L	AsureQuality Method (LC-MS/MS)
Total PFHxS (3)	0.32	μg/L	AsureQuality Method (LC-MS/MS)
PFHpS	0.0080	μg/L	AsureQuality Method (LC-MS/MS)
di-PFOS (5)	0.0065	μg/L	AsureQuality Method (LC-MS/MS)
mono-PFOS (5)	0.10	μg/L	AsureQuality Method (LC-MS/MS)
L-PFOS (5)	0.31	μg/L	AsureQuality Method (LC-MS/MS)
Total PFOS (7)	0.42	μg/L	AsureQuality Method (LC-MS/MS)
Sum PFHxS+PFOS (1)	0.74	μg/L	AsureQuality Method (LC-MS/MS)
PFNS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFDS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Perfluoroalkylcarboxylic acids			
PFBA	0.052	μg/L	AsureQuality Method (LC-MS/MS)
PFPeA	0.18	μg/L	AsureQuality Method (LC-MS/MS)
PFHxA	0.74	μg/L	AsureQuality Method (LC-MS/MS)
PFHpA	0.064	μg/L	AsureQuality Method (LC-MS/MS)
PFOA	0.044	μg/L	AsureQuality Method (LC-MS/MS)
PFNA	0.0018	μg/L	AsureQuality Method (LC-MS/MS)
PFDA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFUnDA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFDoDA	<0.025	μg/L	AsureQuality Method (LC-MS/MS)
PFTrDA	<0.025	μg/L	AsureQuality Method (LC-MS/MS)
PFTeDA	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamides			
PFOSA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
NEtFOSA-M	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSA-M	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamidoacetic acids			
NEtFOSAA	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)

Test	Result	Unit	Method Reference
NMeFOSAA	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamidoethanols			
NEtFOSE-M	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSE-M	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
Telomere Sulfonic acids			
4:2 FTS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
6:2 FTS	0.023	μg/L	AsureQuality Method (LC-MS/MS)
8:2 FTS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Internal Standards			
M3PFBS	111	%	AsureQuality Method (LC-MS/MS)
M3PFHxS	100	%	AsureQuality Method (LC-MS/MS)
M8PFOS	99	%	AsureQuality Method (LC-MS/MS)
M4PFBA	125	%	AsureQuality Method (LC-MS/MS)
M5PFPeA	108	%	AsureQuality Method (LC-MS/MS)
M5PFHxA	88	%	AsureQuality Method (LC-MS/MS)
MPFHpA	106	%	AsureQuality Method (LC-MS/MS)
M8PFOA	102	%	AsureQuality Method (LC-MS/MS)
M9PFNA	88	%	AsureQuality Method (LC-MS/MS)
M6PFDA	94	%	AsureQuality Method (LC-MS/MS)
M7PFUnDA	80	%	AsureQuality Method (LC-MS/MS)
MPFDoDA	56	%	AsureQuality Method (LC-MS/MS)
MPFTeDA	48	%	AsureQuality Method (LC-MS/MS)
MPFOSA	87	%	AsureQuality Method (LC-MS/MS)
DNEtFOSA	50	%	AsureQuality Method (LC-MS/MS)
DNMeFOSA	57	%	AsureQuality Method (LC-MS/MS)
DNEtFOSAA	84	%	AsureQuality Method (LC-MS/MS)
DNMeFOSAA	102	%	AsureQuality Method (LC-MS/MS)
DNEtFOSE	55	%	AsureQuality Method (LC-MS/MS)
DNMeFOSE	68	%	AsureQuality Method (LC-MS/MS)
M4:2FTS	127	%	AsureQuality Method (LC-MS/MS)
M6:2FTS	83	%	AsureQuality Method (LC-MS/MS)
M8:2FTS	102	%	AsureQuality Method (LC-MS/MS)
ustomer Sample Name: QAQC08			AsureQuality ID: 18-213132
Imple Description: Groundwater			
ample Condition: Acceptable	Sampled Date: 23-Aug-2018		
Test	Result	Unit	Method Reference

Test	Result	Unit	Method Reference
ly- and Perfluorinated Alkyl Substances (PFAS) i	in Water		
Perfluoroalkylsulfonic acids			
PFPrS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFBS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFPeS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
di-PFHxS (1)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
mono-PFHxS (1)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
L-PFHxS (1)	0.0015	μg/L	AsureQuality Method (LC-MS/MS)
Total PFHxS (3)	0.0015	μg/L	AsureQuality Method (LC-MS/MS)
PFHpS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
di-PFOS (5)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
mono-PFOS (5)	0.0017	μg/L	AsureQuality Method (LC-MS/MS)

日平DS (5)	Test	Result	Unit	Method Reference
Sum PFH65 PFOS (1) 0.0017 μg/L AsuroQuality Method (LC-MSAMS) PFNS 40.0010 μg/L AsuroQuality Method (LC-MSAMS) PFNS 40.0010 μg/L AsuroQuality Method (LC-MSAMS) PFNBA 0.091 μg/L AsuroQuality Method (LC-MSAMS) PFPA 0.33 μg/L AsuroQuality Method (LC-MSAMS) PFNA 0.17 μg/L AsuroQuality Method (LC-MSAMS) PFNA 0.12 μg/L AsuroQuality Method (LC-MSAMS) PFOA 0.12 μg/L AsuroQuality Method (LC-MSAMS) PFNA 0.17 μg/L AsuroQuality Method (LC-MSAMS) PFNA 0.016 μg/L AsuroQuality Method (LC-MSAMS) PFNA 0.017 μg/L AsuroQuality Method (LC-MSAMS) PFNA 0.016 μg/L AsuroQuality Method (LC-MSAMS) PFLDA 0.025 μg/L AsuroQuality Method (LC-MSAMS) PFTDA 0.026 μg/L AsuroQuality Method (LC-MSAMS) PFTDA 0.025 μg/L AsuroQuality Method (LC-MSAMS)	L-PFOS (5)	0.0045	μg/L	AsureQuality Method (LC-MS/MS)
PFNS 40 0010 μgt. AsureQuality Method (LC MS/MS) PFNS 40 0010 μgt. AsureQuality Method (LC MS/MS) PFNA 20 001 μgt. AsureQuality Method (LC MS/MS) PFPAA 0.33 μgt. AsureQuality Method (LC MS/MS) PFPAA 0.12 μgt. AsureQuality Method (LC MS/MS) PFNA 0.12 μgt. AsureQuality Method (LC MS/MS) PFNA 0.076 μgt. AsureQuality Method (LC MS/MS) PFNA 0.078 μgt. AsureQuality Method (LC MS/MS) PFNA 0.078 μgt. AsureQuality Method (LC MS/MS) PFNA 0.078 μgt. AsureQuality Method (LC MS/MS) PFNA 0.0016 μgt. AsureQuality Method (LC MS/MS) PFDADA 0.0028 μgt. AsureQuality Method (LC MS/MS) PFTDAD 0.0028 μgt. AsureQuality Method (LC MS/MS) PFTDAD 0.0011 μgt. AsureQuality Method (LC MS/MS) PFTDAD 0.0011 μgt. AsureQuality Method (LC MS/MS)	Total PFOS (7)	0.0062	μg/L	AsureQuality Method (LC-MS/MS)
PFDS 40.0010 pgL AsureQuality Method (LC-MSMS) PerBace 0.001 µgL AsureQuality Method (LC-MSMS) PFDAA 0.033 µgL AsureQuality Method (LC-MSMS) PFHAA 0.17 µgL AsureQuality Method (LC-MSMS) PFHAA 0.12 µgL AsureQuality Method (LC-MSMS) PFDAA 0.17 µgL AsureQuality Method (LC-MSMS) PFDAA 0.017 µgL AsureQuality Method (LC-MSMS) PFDAA 0.017 µgL AsureQuality Method (LC-MSMS) PFDAA 0.016 µgL AsureQuality Method (LC-MSMS) PFDAA 0.010 µgL AsureQuality Method (LC-MSMS) PFDAA 0.025 µgL AsureQuality Method (LC-MSMS) PFDAA 0.026 µgL AsureQuality Method (LC-MSMS) PFDAA 0.027 µgL AsureQuality Method (LC-MSMS) PFTDAA 0.028 µgL AsureQuality Method (LC-MSMS) PFTDAA 0.029 µgL AsureQuality Method (LC-MSMS) PFTDAA 0	Sum PFHxS+PFOS (1)	0.0077	μg/L	AsureQuality Method (LC-MS/MS)
Pertuan on Note	PFNS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFBA 0.931 μgL AsureQuality Method (LC-MS/NS) PFPPAA 0.33 μgL AsureQuality Method (LC-MS/NS) PFHAA 0.12 μgL AsureQuality Method (LC-MS/NS) PFPAA 0.028 μgL AsureQuality Method (LC-MS/NS) PFDA 0.017 μgL AsureQuality Method (LC-MS/NS) PFDA 0.018 μgL AsureQuality Method (LC-MS/NS) PFDA 0.016 μgL AsureQuality Method (LC-MS/NS) PFDADA 4.0026 μgL AsureQuality Method (LC-MS/NS) PFTDDA 4.0028 μgL AsureQuality Method (LC-MS/NS) PFTDDA 4.0028 μgL AsureQuality Method (LC-MS/NS) PFTDA 4.0028 μgL AsureQuality Method (LC-MS/NS) PFTDA 4.0010 μgL AsureQuality Method (LC-MS/NS) NEFOSAM 4.0010 μgL AsureQuality Method (LC-MS/NS) NEFOSAM 4.0010 μgL AsureQuality Method (LC-MS/NS) NEFOSAM 4.0000 μgL AsureQuality Method (LC-MS/NS)	PFDS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFPEA 0.33 µg/L AsureQuality Method (LC-MSMS) PFINAA 0.17 µg/L AsureQuality Method (LC-MSMS) PFDAA 0.12 µg/L AsureQuality Method (LC-MSMS) PFDA 0.028 µg/L AsureQuality Method (LC-MSMS) PFDA 0.016 µg/L AsureQuality Method (LC-MSMS) PFDA 0.016 µg/L AsureQuality Method (LC-MSMS) PFDAA 4.0076 µg/L AsureQuality Method (LC-MSMS) PFDAA 4.0078 µg/L AsureQuality Method (LC-MSMS) PFDAA 4.0078 µg/L AsureQuality Method (LC-MSMS) PFTDAA 4.0078 µg/L AsureQuality Method (LC-MSMS) PFTDAA 4.0079 µg/L AsureQuality Method (LC-MSMS) PFTDAA 4.0060 µg/L AsureQuality Method (LC-MSMS) NEFOSAA 4.0060 µg/L AsureQuality Method (LC-MSMS) NEFOSAA 4.0050 µg/L AsureQuality Method (LC-MSMS) NEFOSAA 4.0050 µg/L AsureQuality Method (LC-MSMS) <td< td=""><td>Perfluoroalkylcarboxylic acids</td><td></td><td></td><td></td></td<>	Perfluoroalkylcarboxylic acids			
FFHAA 0.17 µg/L AsureQuality Method (LC-MSAMS) FFHAA 0.12 µg/L AsureQuality Method (LC-MSAMS) FFNA 0.017 µg/L AsureQuality Method (LC-MSAMS) FFNA 0.016 µg/L AsureQuality Method (LC-MSAMS) FFDA 0.016 µg/L AsureQuality Method (LC-MSAMS) FFDDA 4.0016 µg/L AsureQuality Method (LC-MSAMS) FFLDA 4.0025 µg/L AsureQuality Method (LC-MSAMS) FFTDA 4.0026 µg/L AsureQuality Method (LC-MSAMS) FFTDA 4.0016 µg/L AsureQuality Method (LC-MSAMS) FFTDA 4.0016 µg/L AsureQuality Method (LC-MSAMS) FFTDA 4.0050 µg/L AsureQuality Method (LC-MSAMS) NAFEOSAA 4.0050 µg/L AsureQuality Method (LC-MSAMS) NAFEOSA 4.0050 µg/L AsureQuality Method (LC-MSAMS) NAFEOSA 4.0050 µg/L AsureQuality Method (LC-MSAMS) NAFEOSA 4.0050 µg/L AsureQuality Method (LC-MSAMS)	PFBA	0.091	μg/L	AsureQuality Method (LC-MS/MS)
FFHpA 0.12 µgfL AsureQuality Method (LC-MS/MS) PFOA 0.028 µgfL AsureQuality Method (LC-MS/MS) PFOA 0.016 µgfL AsureQuality Method (LC-MS/MS) PFDA 0.016 µgfL AsureQuality Method (LC-MS/MS) PFDA 4.0010 µgfL AsureQuality Method (LC-MS/MS) PFDADA <0.025	PFPeA	0.33	μg/L	AsureQuality Method (LC-MS/MS)
PFOA 0.028 µgl. AsureQuality Method (LC-MS/MS) PFNA 0.017 µgl. AsureQuality Method (LC-MS/MS) PFDA 0.010 µgl. AsureQuality Method (LC-MS/MS) PFUDA <0.0010	PFHxA	0.17	μg/L	AsureQuality Method (LC-MS/MS)
FFNA 0.017 jgf. AsureQuality Method (LC-MSSMS) FFDA 0.016 jgf. AsureQuality Method (LC-MSSMS) FFDAA 0.016 jgf. AsureQuality Method (LC-MSSMS) FFDDAA <0.025	PFHpA	0.12	μg/L	AsureQuality Method (LC-MS/MS)
PFDA 0.016 µg1L AsureQuality Method (LC-MS/MS) PFUDA <0.0010	PFOA	0.028	μg/L	AsureQuality Method (LC-MS/MS)
PFUNDA AsureQuality Method (LC-MS/MS) PFDDA <0.025	PFNA	0.017	μg/L	AsureQuality Method (LC-MS/MS)
PFDDDA CD.25 IgAL AsureQuality Method (LC-MS/MS) PFTDA <0.025 IgAL AsureQuality Method (LC-MS/MS) PFTDADA <0.025 IgAL AsureQuality Method (LC-MS/MS) PFTEDADA <0.0010 IgAL AsureQuality Method (LC-MS/MS) NEIFOSAA <0.0050 IgAL AsureQuality Method (LC-MS/MS) NIEFOSAA <th< td=""><td>PFDA</td><td>0.016</td><td>μg/L</td><td>AsureQuality Method (LC-MS/MS)</td></th<>	PFDA	0.016	μg/L	AsureQuality Method (LC-MS/MS)
PFTrDA <0.025 pyl. AsureQuality Method (I.C-MS/MS) PFTeDA <0.10 pyl. AsureQuality Method (I.C-MS/MS) Poffuoroctanesulfonamides FFTEDA AsureQuality Method (I.C-MS/MS) PEGDA <0.0010 pyl. AsureQuality Method (I.C-MS/MS) NEIFOSA-M <0.0050 pyl. AsureQuality Method (I.C-MS/MS) Perfluoroctanesulfonamidocotic acids NEIFOSAA <0.0050 pyl. AsureQuality Method (I.C-MS/MS) NEIFOSAA <0.0050 pyl. AsureQuality Method (I.C-MS/MS) NEIFOSAA <0.0050 pyl. AsureQuality Method (I.C-MS/MS) NEIFOSE-M <0.0050 pyl. AsureQuality Method (I.C-MS/MS) NIEFOSE-M <0.0050 pyl. AsureQuality Method (I.C-MS/MS) 1050mer Sulforic acids 2.2 FTS <0.0010 pyl. AsureQuality Method (I.C-MS/MS) 2.2 FTS <0.0010 pyl. AsureQuality Method (I.C-MS/MS) 8.2 FTS <0.050 pyl. AsureQuality Method (I.C-MS/MS) MSPFBA <0.050 pyl. AsureQuality Method (I.C	PFUnDA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFTEDA <0.10 pyIL AsureQuality Method (I.C-MS/MS) Perflux Concotanesulfonamides PFOSA <0.0010 µg/L AsureQuality Method (I.C-MS/MS) NEIFOSAM <0.0050 µg/L AsureQuality Method (I.C-MS/MS) NIMEFOSAM <0.0050 µg/L AsureQuality Method (I.C-MS/MS) Perfluxcoctanesulfonamidoscetic acide NIMEFOSAA <0.0050 µg/L AsureQuality Method (I.C-MS/MS) NIMEFOSAA <0.0050 µg/L AsureQuality Method (I.C-MS/MS) Perfluxcoctanesulfonamidoethanots NIMEFOSE-M <0.0050 µg/L AsureQuality Method (I.C-MS/MS) NIMEFOSE-M <0.0050 µg/L AsureQuality Method (I.C-MS/MS) NIMEFOSE-M <0.0050 µg/L AsureQuality Method (I.C-MS/MS) Tolomere Sulforic acids ***********************************	PFDoDA	<0.025	μg/L	AsureQuality Method (LC-MS/MS)
Perfluoroctanesulfonamidos PEGAS < 0.0010 µJL AsureQuality Method (LC-MS/MS) NEIFOSA-M < 0.0050	PFTrDA	<0.025	μg/L	AsureQuality Method (LC-MS/MS)
PFOSA <0.0010 µg/L AsureQuality Method (LC-MS/MS) NEIFOSAM 0.0050 µg/L AsureQuality Method (LC-MS/MS) NIMEFOSAM 0.0050 µg/L AsureQuality Method (LC-MS/MS) Porfluoroctanesulfonamidoacetia calds V V AsureQuality Method (LC-MS/MS) NEFOSAA 0.0050 µg/L AsureQuality Method (LC-MS/MS) NEIFOSEM 0.0050 µg/L AsureQuality Method (LC-MS/MS) NEFOSEM 0.0050 µg/L AsureQuality Method (LC-MS/MS) S2FTS 0.0050 µg/L AsureQuality Method (LC-MS/MS) S2FTS 0.050 µg/L AsureQuality Method (LC-MS/MS) MSPFBS 103 % AsureQuality Method (LC-MS/MS) MSPFBS 103 % AsureQuality Method (LC-MS/MS) MSPFDA 127 % AsureQuality Method	PFTeDA	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
NEFOSA-M AsureQuality Method (LC-MS/MS) NMEFOSA-M	Perfluorooctanesulfonamides			
NMeFOSA-M <0.0050 µg/L AsureQuality Method (LC-MS/MS) Perfluorocxtanesulfonamidoacetic acids Sug/L AsureQuality Method (LC-MS/MS) NEEFOSAA <0.0050 µg/L AsureQuality Method (LC-MS/MS) NMeFOSAA <0.0050 µg/L AsureQuality Method (LC-MS/MS) NMEFOSE-M <0.0050 µg/L AsureQuality Method (LC-MS/MS) NMEFOSE-M <0.0050 µg/L AsureQuality Method (LC-MS/MS) Telomere Sulfonic acids AsureQuality Method (LC-MS/MS) 6:2 FTS <0.017 µg/L AsureQuality Method (LC-MS/MS) 6:2 FTS <0.017 µg/L AsureQuality Method (LC-MS/MS) 8:2 FTS <0.050 µg/L AsureQuality Method (LC-MS/MS) 8:2 FTS <0.050 µg/L AsureQuality Method (LC-MS/MS) M3PFBS <0.050 µg/L AsureQuality Method (LC-MS/MS) M8PFBS <0.050 AsureQuality Method (LC-MS/MS) M8PFBS <0.050 AsureQuality Method (LC-MS/MS) M8PFBS <0.050 AsureQuality Method (LC-MS/MS)	PFOSA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorocctanesulfonamidoacetic acids <td>NEtFOSA-M</td> <td><0.0050</td> <td>μg/L</td> <td>AsureQuality Method (LC-MS/MS)</td>	NEtFOSA-M	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
NEIFOSAA < 0.0050 µg/L AsureQuality Method (LC-MS/MS) NM6FOSAA < 0.0050 µg/L AsureQuality Method (LC-MS/MS) Perfluoroctanesufonamidoethanols NEIFOSE-M < 0.0050 µg/L AsureQuality Method (LC-MS/MS) NM6FOSE-M < 0.0050 µg/L AsureQuality Method (LC-MS/MS) Telomere Sulfonic acids 42 FTS < 0.0010 µg/L AsureQuality Method (LC-MS/MS) 62 FTS < 0.70 µg/L AsureQuality Method (LC-MS/MS) 82 FTS < 0.70 µg/L AsureQuality Method (LC-MS/MS) 82 FTS < 0.75 µg/L AsureQuality Method (LC-MS/MS) 83 FBS 103 % AsureQuality Method (LC-MS/MS) M3FFHxS 105 % AsureQuality Method (LC-MS/MS) M4FBA 61 % AsureQuality Method (LC-MS/MS) M5FFPPA 94 % AsureQuality Method (LC-MS/MS) M5FFHxA 98 % AsureQuality Method (LC-MS/MS) M8FFOA 98	NMeFOSA-M	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSAA <0.0050 µg/L AsureQuality Method (LC-MS/MS) Perfluoroctanesulfonamidoethanols VERFOSE-M <0.0050 µg/L AsureQuality Method (LC-MS/MS) NMeFOSE-M <0.0050 µg/L AsureQuality Method (LC-MS/MS) Tebiomer Sulfonia acids VERFOSE-M <0.0010 µg/L AsureQuality Method (LC-MS/MS) 6:2 FTS 0.17 µg/L AsureQuality Method (LC-MS/MS) 8:2 FTS 0.050 µg/L AsureQuality Method (LC-MS/MS) 8:2 FTS 0.050 µg/L AsureQuality Method (LC-MS/MS) 8:2 FTS 103 % AsureQuality Method (LC-MS/MS) 8:3 FPS 103 % AsureQuality Method (LC-MS/MS) M3PFBS 105 % AsureQuality Method (LC-MS/MS) M4PFBA 61 % AsureQuality Method (LC-MS/MS) M5PFPeA 94 % AsureQuality Method (LC-MS/MS) M5PFHA 104 % AsureQuality Method (LC-MS/MS) M6PFDA 127 % AsureQuality Method (LC-MS/MS) M6PFDA 127	Perfluorooctanesulfonamidoacetic acids			
Perfluoroctanesulfonamidoethanols Verifluoroctanesulfonamidoethanols NEIFOSE-M <0.0050	NEtFOSAA	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
NEFFOSE-M < 0.0050 µg/L AsureQuality Method (LC-MS/MS) NMeFOSE-M < 0.0050 µg/L AsureQuality Method (LC-MS/MS) Telomere Sulfonic ackds 4:2 FTS < 0.0010 µg/L AsureQuality Method (LC-MS/MS) 6:2 FTS 0.17 µg/L AsureQuality Method (LC-MS/MS) 2:2 FTS 0.15 µg/L AsureQuality Method (LC-MS/MS) 8:2 FTS 0.10 % AsureQuality Method (LC-MS/MS) Potendal Standards 103 % AsureQuality Method (LC-MS/MS) M3PFBS 103 % AsureQuality Method (LC-MS/MS) M3PFBA 105 % AsureQuality Method (LC-MS/MS) M4PFBA 61 % AsureQuality Method (LC-MS/MS) M5PFPA 94 % AsureQuality Method (LC-MS/MS) M5PFHyA 104 % AsureQuality Method (LC-MS/MS) M6PFDA 104 % AsureQuality Method (LC-MS/MS) M6PFDA 120 % AsureQuality Method (LC-MS/MS) M6PFDA	NMeFOSAA	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSE-M <0.0050 µg/L AsureQuality Method (LC-MS/MS) Telomere Sulfonic acids V 4:2 FTS <0.0010	Perfluorooctanesulfonamidoethanols			
Telomere Sulfonic acids 4.2 FTS <0.0010	NEtFOSE-M	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
4.2 FTS <0.0010	NMeFOSE-M	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
6:2 FTS 0.17 µg/L AsureQuality Method (LC-MS/MS) 8:2 FTS 0.050 µg/L AsureQuality Method (LC-MS/MS) Internal Standards M3PFBS 103 % AsureQuality Method (LC-MS/MS) M3PFHxS 105 % AsureQuality Method (LC-MS/MS) M8PFOS 127 % AsureQuality Method (LC-MS/MS) M4PFBA 61 % AsureQuality Method (LC-MS/MS) M5PFPeA 94 % AsureQuality Method (LC-MS/MS) M5PFHxA 98 % AsureQuality Method (LC-MS/MS) M6PFDA 104 % AsureQuality Method (LC-MS/MS) M8PFOA 89 % AsureQuality Method (LC-MS/MS) M6PFDA 120 % AsureQuality Method (LC-MS/MS) M6PFDA 127 % AsureQuality Method (LC-MS/MS) M7PFUNDA 124 % AsureQuality Method (LC-MS/MS) MPFDODA 108 % AsureQuality Method (LC-MS/MS) MPFTeDA 56 % AsureQuality Method (LC-MS/MS)				
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M8PFOS 127 % AsureQuality Method (LC-MS/MS) M4PFBA 61 % AsureQuality Method (LC-MS/MS) M5PFPeA 94 % AsureQuality Method (LC-MS/MS) M5PFHXA 98 % AsureQuality Method (LC-MS/MS) MPFHpA 104 % AsureQuality Method (LC-MS/MS) M8PFOA 89 % AsureQuality Method (LC-MS/MS) M9PFNA 120 % AsureQuality Method (LC-MS/MS) M6PFDA 127 % AsureQuality Method (LC-MS/MS) M7PFUNDA 124 % AsureQuality Method (LC-MS/MS) MPFDODA 108 % AsureQuality Method (LC-MS/MS) MPFTeDA 56 % AsureQuality Method (LC-MS/MS) MPFOSA 102 % AsureQuality Method (LC-MS/MS) DNEtFOSA 90 % AsureQuality Method (LC-MS/MS) DNMeFOSA 90 % AsureQuality Method (LC-MS/MS)				,
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M8PFOA 89 % AsureQuality Method (LC-MS/MS) M9PFNA 120 % AsureQuality Method (LC-MS/MS) M6PFDA 127 % AsureQuality Method (LC-MS/MS) M7PFUnDA 124 % AsureQuality Method (LC-MS/MS) MPFDoDA 108 % AsureQuality Method (LC-MS/MS) MPFTeDA 56 % AsureQuality Method (LC-MS/MS) MPFOSA 102 % AsureQuality Method (LC-MS/MS) DNEtFOSA 90 % AsureQuality Method (LC-MS/MS) DNMeFOSA 90 % AsureQuality Method (LC-MS/MS)				· · · · ·
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MPFDoDA 108 % AsureQuality Method (LC-MS/MS) MPFTeDA 56 % AsureQuality Method (LC-MS/MS) MPFOSA 102 % AsureQuality Method (LC-MS/MS) DNEtFOSA 90 % AsureQuality Method (LC-MS/MS) DNMeFOSA 90 % AsureQuality Method (LC-MS/MS)				· · · · · · · · · · · · · · · · · · ·
MPFTeDA 56 % AsureQuality Method (LC-MS/MS) MPFOSA 102 % AsureQuality Method (LC-MS/MS) DNEtFOSA 90 % AsureQuality Method (LC-MS/MS) DNMeFOSA 90 % AsureQuality Method (LC-MS/MS)				
MPFOSA 102 % AsureQuality Method (LC-MS/MS) DNEtFOSA 90 % AsureQuality Method (LC-MS/MS) DNMeFOSA 90 % AsureQuality Method (LC-MS/MS)				
DNEtFOSA 90 % AsureQuality Method (LC-MS/MS) DNMeFOSA 90 % AsureQuality Method (LC-MS/MS)				
DNMeFOSA 90 % AsureQuality Method (LC-MS/MS)				AsureQuality Method (LC-MS/MS)
	DNEtFOSA	90		AsureQuality Method (LC-MS/MS)
DNEtFOSAA 108 % AsureQuality Method (LC-MS/MS)	DNMeFOSA	90		AsureQuality Method (LC-MS/MS)
	DNEtFOSAA	108	%	AsureQuality Method (LC-MS/MS)

Test	Result	Unit	Method Reference
DNMeFOSAA	125	%	AsureQuality Method (LC-MS/MS)
DNEtFOSE	96	%	AsureQuality Method (LC-MS/MS)
DNMeFOSE	96	%	AsureQuality Method (LC-MS/MS)
M4:2FTS	140	%	AsureQuality Method (LC-MS/MS)
M6:2FTS	96	%	AsureQuality Method (LC-MS/MS)
M8:2FTS	139	%	AsureQuality Method (LC-MS/MS)

QC Results

Blank

Relates to sample(s) 18-213132-1, 18-213132-3, 18-213132-5, 18-213132-6

est	Result	Unit	Method Reference
oly- and Perfluorinated Alkyl Substances (PFAS) in Wat	er		
Perfluoroalkylsulfonic acids			
PFPrS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFBS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFPeS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
di-PFHxS (1)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
mono-PFHxS (1)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
L-PFHxS (1)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Total PFHxS (3)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFHpS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
di-PFOS (5)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
mono-PFOS (5)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
L-PFOS (5)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Total PFOS (7)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Sum PFHxS+PFOS (1)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFNS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFDS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Perfluoroalkylcarboxylic acids			
PFBA	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
PFPeA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFHxA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFHpA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFOA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFNA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFDA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFUnDA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFDoDA	<0.025	μg/L	AsureQuality Method (LC-MS/MS)
PFTrDA	<0.025	μg/L	AsureQuality Method (LC-MS/MS)
PFTeDA	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamides			
PFOSA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
NEtFOSA-M	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSA-M	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamidoacetic acids			
NEtFOSAA	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)

est	Result	Unit	Method Reference
NMeFOSAA	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamidoethanols			
NEtFOSE-M	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSE-M	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
Telomere Sulfonic acids			
4:2 FTS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
6:2 FTS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
8:2 FTS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Internal Standards			
M3PFBS	100	%	AsureQuality Method (LC-MS/MS)
M3PFHxS	100	%	AsureQuality Method (LC-MS/MS)
M8PFOS	100	%	AsureQuality Method (LC-MS/MS)
M4PFBA	100	%	AsureQuality Method (LC-MS/MS)
M5PFPeA	100	%	AsureQuality Method (LC-MS/MS)
M5PFHxA	100	%	AsureQuality Method (LC-MS/MS)
MPFHpA	100	%	AsureQuality Method (LC-MS/MS)
M8PFOA	100	%	AsureQuality Method (LC-MS/MS)
M9PFNA	100	%	AsureQuality Method (LC-MS/MS)
M6PFDA	100	%	AsureQuality Method (LC-MS/MS)
M7PFUnDA	100	%	AsureQuality Method (LC-MS/MS)
MPFDoDA	100	%	AsureQuality Method (LC-MS/MS)
MPFTeDA	100	%	AsureQuality Method (LC-MS/MS)
MPFOSA	100	%	AsureQuality Method (LC-MS/MS)
DNEtFOSA	100	%	AsureQuality Method (LC-MS/MS)
DNMeFOSA	100	%	AsureQuality Method (LC-MS/MS)
DNEtFOSAA	100	%	AsureQuality Method (LC-MS/MS)
DNMeFOSAA	100	%	AsureQuality Method (LC-MS/MS)
DNEtFOSE	100	%	AsureQuality Method (LC-MS/MS)
DNMeFOSE	100	%	AsureQuality Method (LC-MS/MS)
M4:2FTS	100	%	AsureQuality Method (LC-MS/MS)
M6:2FTS	100	%	AsureQuality Method (LC-MS/MS)
M8:2FTS	100	%	AsureQuality Method (LC-MS/MS)

Report Number: 1241689

Relates to sample(s) 18-213132-2, 18-213132-4

est	Result	Unit	Method Reference			
oly- and Perfluorinated Alkyl Substances (PFAS) in Water - High Level						
Perfluoroalkylsulfonic acids						
PFPrS	<0.10	μg/L	AsureQuality Method (LC-MS/MS)			
PFBS	<0.10	μg/L	AsureQuality Method (LC-MS/MS)			
PFPeS	<0.10	μg/L	AsureQuality Method (LC-MS/MS)			
di-PFHxS (1)	<0.10	μg/L	AsureQuality Method (LC-MS/MS)			
mono-PFHxS (1)	<0.10	μg/L	AsureQuality Method (LC-MS/MS)			
L-PFHxS (1)	<0.10	μg/L	AsureQuality Method (LC-MS/MS)			
Total PFHxS (3)	<0.10	μg/L	AsureQuality Method (LC-MS/MS)			
PFHpS	<0.10	μg/L	AsureQuality Method (LC-MS/MS)			
di-PFOS (5)	<0.10	μg/L	AsureQuality Method (LC-MS/MS)			

Test	Result	Unit	Method Reference
mono-PFOS (5)	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
L-PFOS (5)	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
Total PFOS (7)	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
Sum PFHxS+PFOS (1)	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
PFNS	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
PFDS	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
Perfluoroalkylcarboxylic acids			
PFBA	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
PFPeA	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
PFHxA	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
PFHpA	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
PFOA	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
PFNA	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
PFDA	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
PFUnDA	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
PFDoDA	<5.0	μg/L	AsureQuality Method (LC-MS/MS)
PFTrDA	<5.0	μg/L	AsureQuality Method (LC-MS/MS)
PFTeDA	<20	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamides			
PFOSA	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
NEtFOSA-M	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSA-M	<1.0	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamidoacetic acids			
NEtFOSAA	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSAA	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamidoethanols			
NEtFOSE-M	<1.0	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSE-M	<1.0	μg/L	AsureQuality Method (LC-MS/MS)
Telomere Sulfonic acids			
4:2 FTS	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
6:2 FTS	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
8:2 FTS	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
Internal Standards			
M3PFBS	104	%	AsureQuality Method (LC-MS/MS)
M3PFHxS	102	%	AsureQuality Method (LC-MS/MS)
M8PFOS	104	%	AsureQuality Method (LC-MS/MS)
M4PFBA	107	%	AsureQuality Method (LC-MS/MS)
M5PFPeA	102	%	AsureQuality Method (LC-MS/MS)
M5PFHxA	101	%	AsureQuality Method (LC-MS/MS)
MPFHpA	102	%	AsureQuality Method (LC-MS/MS)
M8PFOA	104	%	AsureQuality Method (LC-MS/MS)
M9PFNA	105	%	AsureQuality Method (LC-MS/MS)
M6PFDA	106	%	AsureQuality Method (LC-MS/MS)
M7PFUnDA	104	%	AsureQuality Method (LC-MS/MS)
MPFDoDA	104	%	AsureQuality Method (LC-MS/MS)
MPFTeDA	109	%	AsureQuality Method (LC-MS/MS)

108	%	AsureQuality Method (LC-MS/MS)
104		
101	%	AsureQuality Method (LC-MS/MS)
98	%	AsureQuality Method (LC-MS/MS)
101	%	AsureQuality Method (LC-MS/MS)
100	%	AsureQuality Method (LC-MS/MS)
106	%	AsureQuality Method (LC-MS/MS)
100	%	AsureQuality Method (LC-MS/MS)
104	%	AsureQuality Method (LC-MS/MS)
104	%	AsureQuality Method (LC-MS/MS)
107	%	AsureQuality Method (LC-MS/MS)
	100 106 100 104 104	100 % 106 % 100 % 104 % 104 %

Analysis Summary

Wellington Laboratory

Analysis	Method	Accreditation	Authorised by	
Poly- and Perfluorinated Alkyl Sub-	stances (PFAS) in Water			
DX-PFCS01, 03-SUITE_B	AsureQuality Method (LC-MS/MS)	IANZ	Cameron Evans	

di-PFHxS (1) = Concentration determined using a branched di-PFHxS isomer standard (399>80 transition)

mono-PFHxS (1) = Concentration determined using a branched mono-PFHxS isomer standard (399>80 transition)

L-PFHxS (1) = Concentration determined using the linear PFHxS isomer standard (399>80 transition)

Total PFHxS (3) = The numerical sum of di-PFHxS (1), mono-PFHxS (1), and L-PFHxS (1)

di-PFOS (5) = Concentration determined using a branched di-PFOS isomer standard (499>80 transition)

mono-PFOS (5) = Concentration determined using a branched mono-PFOS isomer standard (499>80 transition)

L-PFOS (5) = Concentration determined using the linear PFOS isomer standard (499>230 transition)

Total PFOS (7) = The numerical sum of di-PFOS (5), mono-PFOS (5), and L-PFOS (5)

Sum PFHxS+PFOS (1) = The numerical sum of Total PFHxS (3) and Total PFOS (7)

For all Totals, where a component is detected below the LOR, the value of zero is used in the calculation of the sum. The result represents the lower-bound concentration present in the sample.

Reported results are corrected for internal standard recovery

Any tests marked with * are not accredited for specific matrices or analytes.

Results that are prefixed with '<' indicate the lowest level at which the analyte can be reported, and that in this case the analyte was not observed above this limit.

Cameron Evans

Scientist

Accreditation



AsureQuality Reference: 18-213132 Report Issued: 19-Sep-2018

Appendix

Analyte LOR Summary

Poly- and Perfluorinated Alky	d Substances (PFAS) in Water	 AsureQuality Method (LC-MS/MS)

Analyte LOR (µg/L)

Listing applies to samples: 18-213132-2, 18-213132-4

Perfluoroalkylsulfonic acids

PFPrS*	0.0010
PFBS*	0.0010
PFPeS*	0.0010
di-PFHxS (1)*	0.0010
mono-PFHxS (1)*	0.0010
L-PFHxS (1)*	0.0010
Total PFHxS (3)*	0.0010
PFHpS*	0.0010
di-PFOS (5)*	0.0010
mono-PFOS (5)*	0.0010
L-PFOS (5)*	0.0010
Total PFOS (7)*	0.0010
Sum PFHxS+PFOS (1)*	0.0010
PFNS*	0.0010
PFDS*	0.0010

Perfluoroalkylcarboxylic acids

PFBA* 0.0010 PFPeA* 0.0010 PFHxA* 0.0010 PFHpA* 0.0010 PFOA* 0.0010 PFNA* 0.0010 PFDA* 0.0010 PFUnDA* 0.0010 PFDoDA* 0.0010 PFTrDA* 0.0010 PFTeDA* 0.0010

Perfluorooctanesulfonamides

 PFOSA*
 0.0010

 NEtFOSA-M*
 0.0010

 NMeFOSA-M*
 0.0010

Perfluorooctanesulfonamidoacetic acids

 NEtFOSAA*
 0.0010

 NMeFOSAA*
 0.0010

Perfluorooctanesulfonamidoethanols

 NEtFOSE-M*
 0.0010

 NMeFOSE-M*
 0.0010

Telomere Sulfonic acids

4:2 FTS* 0.0010 6:2 FTS* 0.0010 8:2 FTS* 0.0010

Listing applies to samples: 18-213132-1, 18-213132-3, 18-213132-5, 18-213132-6

 PFPrS
 0.0010

 PFBS
 0.0010

 PFPeS
 0.0010

di-PFHxS (1)	0.0010
mono-PFHxS (1)	0.0010
L-PFHxS (1)	0.0010
Total PFHxS (3)	0.0010
PFHpS	0.0010
di-PFOS (5)	0.0010
mono-PFOS (5)	0.0010
L-PFOS (5)	0.0010
Total PFOS (7)	0.0010
Sum PFHxS+PFOS (1)	0.0010
PFNS	0.0010
PFDS	0.0010
Perfluoroalkylcarboxylic acids	
PFBA	0.0010
PFPeA	0.0010
PFHxA	0.0010
PFHpA	0.0010
PFOA	0.0010
PFNA	0.0010
PFDA	0.0010
PFUnDA	0.0010
PFDoDA	0.0010
PFTrDA	0.0010
PFTeDA	0.0010
Perfluorooctanesulfonamides	
PFOSA	0.0010
NEtFOSA-M	0.0010
NMeFOSA-M	0.0010
Perfluorooctanesulfonamidoacetic acids	
NEtFOSAA	0.0010
NMeFOSAA	0.0010
Perfluorooctanesulfonamidoethanols	
NEtFOSE-M	0.0010
NMeFOSE-M	0.0010
Telomere Sulfonic acids	
4:2 FTS	0.0010
6:2 FTS	0.0010
8:2 FTS	0.0010

Analyte Definitions

Poly- and Perfluorinated Alkyl Substances (PFAS) in Water - AsureQuality Method (LC-MS/MS)

Analyte Full Name

Listing applies to samples: 18-213132-2, 18-213132-4

Perfluoroalkylsulfonic acids

PFPrS* Perfluoro-1-propanesulfonic acid

PFBS* Perfluoro-1-butanesulfonic acid

PFPeS* Perfluoro-1-pentanesulfonic acid

di-PFHxS (1)* Total Perfluorodimethylbutane sulfonic acids mono-PFHxS (1)* Total Perfluoromethylpentane sulfonic acids L-PFHxS (1)* Linear Perfluorohexanesulfonic acid
PFHpS* Perfluoro-1-heptanesulfonic acid

di-PFOS (5)* Total Perfluorodimethylhexane sulfonic acids mono-PFOS (5)* Total Perfluoromethylheptane sulfonic acids

Analyte Full Name

L-PFOS (5)* Linear Perfluorooctanesulfonic acid
PFNS* Perfluoro-1-nonanesulfonic acid
PFDS* Perfluoro-1-decanesulfonic acid

Perfluoroalkylcarboxylic acids

PFBA* Perfluoro-n-butanoic acid PFPeA* Perfluoro-n-pentanoic acid PFHxA* Perfluoro-n-hexanoic acid PFHpA* Perfluoro-n-heptanoic acid PFOA* Perfluoro-n-octanoic acid PFNA* Perfluoro-n-nonanoic acid PFDA* Perfluoro-n-decanoic acid PFUnDA* Perfluoro-n-undecanoic acid PFDoDA* Perfluoro-n-dodecanoic acid PFTrDA* Perfluoro-n-tridecanoic acid PFTeDA* Perfluoro-n-tetradecanoic acid

Perfluorooctanesulfonamides

PFOSA* Perfluoro-1-octanesulfonamide

NEtFOSA-M* N-ethylperfluoro-1-octanesulfonamide

NMeFOSA-M* N-methylperfluoro-1-octanesulfonamide

Perfluorooctanesulfonamidoacetic acids

NEtFOSAA* N-ethylperfluoro-1-octanesulfonamidoacetic acid
NMeFOSAA* N-methylperfluoro-1-octanesulfonamidoacetic acid

Perfluorooctanesulfonamidoethanols

NEtFOSE-M*

2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol

NMeFOSE-M*

2-(N-methylperfluoro-1-octanesulfonamido)-ethanol

Telomere Sulfonic acids

4:2 FTS* 1H,1H,2H,2H-perfluoro-1-hexanesulfonic acid
6:2 FTS* 1H,1H,2H,2H-perfluoro-1-octanesulfonic acid
8:2 FTS* 1H,1H,2H,2H-perfluoro-1-decanesulfonic acid

Internal Standards

M9PFNA*

M3PFBS* Perfluoro-1-[2,3,4-13C3]butanesulfonic acid M3PFHxS* Perfluoro-1-[1,2,3-13C3]hexanesulfonic acid M8PFOS* Perfluoro-1-[13C8]octanesulfonic acid M4PFBA* Perfluoro-n-[1,2,3,4-13C4]butanoic acid M5PFPeA* Perfluoro-n-[1,2,3,4,5-13C5]pentanoic acid M5PFHxA* Perfluoro-n-[1,2,3,4,6-13C5]hexanoic acid MPFHpA* Perfluoro-n-[-1,2,3,4-13C4]heptanoic acid M8PFOA* Perfluoro-n-[13C8]octanoic acid

M6PFDA* Perfluoro-n-[1,2,3,4,5,6-13C6]decanoic acid
M7PFUnDA* Perfluoro-n-[1,2,3,4,5,6,7-13C7]undecanoic acid

Perfluoro-n-[13C9]nonanoic acid

MPFDoDA* Perfluoro-n-[1,2-13C2]dodecanoic acid MPFTeDA* Perfluoro-n-[1,2-13C2]tetradecanoic acid MPFOSA* Perfluoro-1-[13C8]octanesulfonamide DNEtFOSA* N-ethyl-D5-perfluoro-1-octanesulfonamide DNMeFOSA* N-methyl-D3-perfluoro-1-octanesulfonamide DNEtFOSAA* N-ethyl-D5-perfluoro-1-octanesulfonamidoacetic acid DNMeFOSAA* N-methyl-D3-perfluoro-1-octanesulfonamidoacetic acid DNFtFOSF* 2-(N-ethyl-D5-perfluoro-1-octanesulfonamido)ethan-D4-ol DNMeFOSE* 2-(N-methyl-D3-perfluoro-1-octanesulfonamido)ethan-D4-ol M4:2FTS* 1H,1H,2H,2H-perfluoro-1-[1,2-13C2]-hexane sulfonic acid M6:2FTS 1H,1H,2H,2H-perfluoro-1-[1,2-13C2]-octane sulfonic acid M8:2FTS* 1H,1H,2H,2H-perfluoro-1-[1,2-13C2]-decane sulfonic acid

AsureQuality Reference: 18-213132 Report Issued: 19-Sep-2018

Analyte Full Name

Listing applies to samples: 18-213132-1, 18-213132-3, 18-213132-5, 18-213132-6

Perfluoroalkylsulfonic acids

PFPrS Perfluoro-1-propanesulfonic acid
PFBS Perfluoro-1-butanesulfonic acid
PFPeS Perfluoro-1-pentanesulfonic acid

di-PFHxS (1)

Total Perfluorodimethylbutane sulfonic acids
mono-PFHxS (1)

Total Perfluoromethylpentane sulfonic acids
L-PFHxS (1)

Linear Perfluorohexanesulfonic acid

PFHpS

Perfluoro-1-heptanesulfonic acid

di-PFOS (5)

Total Perfluorodimethylhexane sulfonic acids
mono-PFOS (5)

Total Perfluoromethylheptane sulfonic acids
L-PFOS (5)

Linear Perfluoroctanesulfonic acid

PFNS

Perfluoro-1-nonanesulfonic acid

PFDS

Perfluoro-1-decanesulfonic acid

Perfluoroalkylcarboxylic acids

PFBA Perfluoro-n-butanoic acid PFPeA Perfluoro-n-pentanoic acid PFHxA Perfluoro-n-hexanoic acid PFHpA Perfluoro-n-heptanoic acid PFOA Perfluoro-n-octanoic acid PFNA Perfluoro-n-nonanoic acid PFDA Perfluoro-n-decanoic acid PFUnDA Perfluoro-n-undecanoic acid **PFDoDA** Perfluoro-n-dodecanoic acid PFTrDA Perfluoro-n-tridecanoic acid PFTeDA Perfluoro-n-tetradecanoic acid

Perfluorooctanesulfonamides

PFOSA Perfluoro-1-octanesulfonamide

NEtFOSA-M N-ethylperfluoro-1-octanesulfonamide

NMeFOSA-M N-methylperfluoro-1-octanesulfonamide

Perfluorooctanesulfonamidoacetic acids

 NEtFOSAA
 N-ethylperfluoro-1-octanesulfonamidoacetic acid

 NMeFOSAA
 N-methylperfluoro-1-octanesulfonamidoacetic acid

Perfluorooctanesulfonamidoethanols

NEtFOSE-M 2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol
NMeFOSE-M 2-(N-methylperfluoro-1-octanesulfonamido)-ethanol

Telomere Sulfonic acids

4:2 FTS 1H,1H,2H,2H-perfluoro-1-hexanesulfonic acid
6:2 FTS 1H,1H,2H,2H-perfluoro-1-octanesulfonic acid
8:2 FTS 1H,1H,2H,2H-perfluoro-1-decanesulfonic acid

Internal Standards

M3PFBS Perfluoro-1-[2,3,4-13C3]butanesulfonic acid M3PFHxS Perfluoro-1-[1,2,3-13C3]hexanesulfonic acid M8PFOS Perfluoro-1-[13C8]octanesulfonic acid M4PFBA Perfluoro-n-[1,2,3,4-13C4]butanoic acid M5PFPeA Perfluoro-n-[1,2,3,4,5-13C5]pentanoic acid M5PFHxA Perfluoro-n-[1,2,3,4,6-13C5]hexanoic acid MPFHpA Perfluoro-n-[-1,2,3,4-13C4]heptanoic acid M8PFOA Perfluoro-n-[13C8]octanoic acid M9PFNA Perfluoro-n-[13C9]nonanoic acid

M6PFDAPerfluoro-n-[1,2,3,4,5,6-13C6]decanoic acidM7PFUnDAPerfluoro-n-[1,2,3,4,5,6,7-13C7]undecanoic acidMPFDoDAPerfluoro-n-[1,2-13C2]dodecanoic acidMPFTeDAPerfluoro-n-[1,2-13C2]tetradecanoic acid

AsureQuality Reference: 18-213132 Report Issued: 19-Sep-2018

Analyte Full Name

MPFOSA Perfluoro-1-[13C8]octanesulfonamide DNEtFOSA N-ethyl-D5-perfluoro-1-octanesulfonamide DNMeFOSA N-methyl-D3-perfluoro-1-octanesulfonamide DNEtFOSAA N-ethyl-D5-perfluoro-1-octanesulfonamidoacetic acid DNMeFOSAA N-methyl-D3-perfluoro-1-octanesulfonamidoacetic acid DNEtFOSE 2-(N-ethyl-D5-perfluoro-1-octanesulfonamido)ethan-D4-ol DNMeFOSE 2-(N-methyl-D3-perfluoro-1-octanesulfonamido)ethan-D4-ol M4:2FTS 1H,1H,2H,2H-perfluoro-1-[1,2-13C2]-hexane sulfonic acid M6:2FTS 1H,1H,2H,2H-perfluoro-1-[1,2-13C2]-octane sulfonic acid M8:2FTS 1H,1H,2H,2H-perfluoro-1-[1,2-13C2]-decane sulfonic acid

Any tests marked with * are not accredited for specific matrices or analytes.

Report Number: 1241689

LOR = Limit of Reporting LOD = Limit of Detection NR = Not Reportable



AsureQuality Food and Environmental Submission Form/Chain of Custody

Customer Details		Reporti	ng Details			•
Company Name:* TARANAKI Reporting Details Report Results To:* Sean hudgens@ aecom.com			1000	18-213132		
Contact Person:	EBIONAL COUNCE	Extra Copie	To:	ecom com	18-21313	32
Callu	Machenzie				AsureQuality Limited	
Email: "callum. N	nackenzie e TRC.				Wellington Laboratory	
Contact Phone No.:*	6 765427	Report each	sample separately?*		1C Quadrant Drive, Waiwhet	u
Address:		to receive an in	oles are listed below, tick yes	No	Lower Hutt 5010	
			D. All Art		New Zealand Tel: +64 4 570 8359	
		11	By (Name):* REBECCA Signed By	***	Email: GracefieldSR@asurequ	ralita a a
		Date/Time I	ispatched:			dality.com
		Condition sa	mple(s) dispatched in:	☐ Chilled ☐ Frozen	Urgency Details*	
		☐ Return sa	ne (include a copy of the MPI Import Permit/Transfer Formple(s) after analysis (Courier fees apply)	rm stating country of origin)	☐ Normal Turn-around-time	
Submission Ref.:		NOTE: Samples	will be discarded/returned 8 weeks after reporting unles	es othomatica landouse d	☐ Urgent Service (please select from	
Purchase Order No.: 🗦 🔾	3494	AC to comp	site samples?	s otherwise instructed.	☐ Half quoted TAT (50% surch	
Contract/Quote No.:				□ No	☐ Quarter quoted TAT (100% s	surcharge)
		Water samp	es submitted?* Potable	☑ Non-Potable	NOTE: For urgent testing, please contact	AQ prior to
Sample Name* Sample Type					submitting samples to confirm availabili	ty.
(unique sample identifier)	(Type of product/substance E.g., Potable Water, Soil, Biota Prod	/material	Sample Description	Sampled Date	Testing Requirements*	AQ Ref.
GWOMI	Liver, Apple, Honey, Spir	nach)	(additional sample information, to appear on report)	(used to determine holding time, if applicable)	(test or compounds to be tested for)	only
GW 9AA	GROUNDA	NATER	GROUNDWATTR	23/8//8	HOLD COLD	
6W9B				77.0	11000 000	
6W28						Name of the last
GW 29						
				+		
QAQCØ8						
QAQC09						
QAQUO				-		
				-		
equired information						
mments/Additional Info	rmation:					
			Keceived Rv	(Name) * a M ~ !~	LF	
			Received By: Signed By:	(Name):* Lauren Mocke	7:45 NZ Couriers 24/08/18	

Page 1 of 1 **QA Controlled Document**



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Global Experts in Food Assurance

Certificate of Analysis

Final Report

Sean Hudgens
AECOM Consulting Services - Wellington
PO Box 27277
Wellington 6141
New Zealand

PO Number: 73494

Submitted by:
Taranaki Regional Council
Private Bag 713
Stratford 4352
New Zealand

Report Issued: 20-Sep-2018 AsureQuality Reference: 18-213620 Sample(s) Received: 23-Aug-2018 07:30

Results

The tests were performed on the samples as received.

ustomer Sample Name: QAQC01			AsureQuality ID: 18-213
ample Description: Groundwater			
ample Condition: Acceptable	Sampled Date: 21-Aug-2018		
Test	Result	Unit	Method Reference
oly- and Perfluorinated Alkyl Substances (Pl	FAS) in Water		
Perfluoroalkylsulfonic acids			
PFPrS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFBS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFPeS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
di-PFHxS (1)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
mono-PFHxS (1)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
L-PFHxS (1)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Total PFHxS (3)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFHpS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
di-PFOS (5)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
mono-PFOS (5)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
L-PFOS (5)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Total PFOS (7)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Sum PFHxS+PFOS (1)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFNS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFDS	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
Perfluoroalkylcarboxylic acids			
PFBA	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
PFPeA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFHxA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFHpA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFOA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFNA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFDA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFUnDA	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
PFDoDA	<0.025	μg/L	AsureQuality Method (LC-MS/MS)
PFTrDA	<0.025	μg/L	AsureQuality Method (LC-MS/MS)

AsureQuality has used reasonable skill, care, and effort to provide an accurate analysis of the sample(s) which form(s) the subject of this report. However, the accuracy of this analysis is reliant on, and subject to, the sample(s) provided by you and your responsibility as to transportation of the sample(s). AsureQuality's standard terms of business apply to the analysis set out in this report.

Test	Result	Unit	Method Reference
PFTeDA	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamides			
PFOSA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
NEtFOSA-M	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSA-M	<0.025	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamidoacetic acids			
NEtFOSAA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSAA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamidoethanols			
NEtFOSE-M	<0.025	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSE-M	<0.025	μg/L	AsureQuality Method (LC-MS/MS)
Telomere Sulfonic acids			
4:2 FTS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
6:2 FTS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
8:2 FTS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Internal Standards			
M3PFBS	81	%	AsureQuality Method (LC-MS/MS)
M3PFHxS	52	%	AsureQuality Method (LC-MS/MS)
M8PFOS	55	%	AsureQuality Method (LC-MS/MS)
M4PFBA	77	%	AsureQuality Method (LC-MS/MS)
M5PFPeA	93	%	AsureQuality Method (LC-MS/MS)
M5PFHxA	85	%	AsureQuality Method (LC-MS/MS)
MPFHpA	73	%	AsureQuality Method (LC-MS/MS)
M8PFOA	59	%	AsureQuality Method (LC-MS/MS)
M9PFNA	58	%	AsureQuality Method (LC-MS/MS)
M6PFDA	59	%	AsureQuality Method (LC-MS/MS)
M7PFUnDA	87	%	AsureQuality Method (LC-MS/MS)
MPFDoDA	88	%	AsureQuality Method (LC-MS/MS)
MPFTeDA	62	%	AsureQuality Method (LC-MS/MS)
MPFOSA	73	%	AsureQuality Method (LC-MS/MS)
DNEtFOSA	80	%	AsureQuality Method (LC-MS/MS)
	78		
DNMeFOSA		%	AsureQuality Method (LC-MS/MS) AsureQuality Method (LC-MS/MS)
DNEtFOSAA	69	%	, ,
DNMeFOSAA	70	%	AsureQuality Method (LC-MS/MS)
DNEtFOSE	76	%	AsureQuality Method (LC-MS/MS)
DNMeFOSE	77	%	AsureQuality Method (LC-MS/MS)
M4:2FTS	92	%	AsureQuality Method (LC-MS/MS)
M6:2FTS	60	%	AsureQuality Method (LC-MS/MS)
M8:2FTS	58	%	AsureQuality Method (LC-MS/MS)
sustomer Sample Name: QAQC04			AsureQuality ID: 18-213620-4
ample Description: Groundwater			
ample Condition: Acceptable	Sampled Date: 21-Aug-2018		
Test	Result	Unit	Method Reference
oly- and Perfluorinated Alkyl Substances (PF	AS) in Water		
Perfluoroalkylsulfonic acids			
PFPrS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFBS			
PFBS PFPeS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)

	Test	Result	Unit	Method Reference
Total PFNoS (3)	mono-PFHxS (1)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFTPA	L-PFHxS (1)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Image	Total PFHxS (3)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
mone-PFOS (5) AsureQuality Method (LC-MSMS) L-PFOS (5) AuerChaity Method (LC-MSMS) L-PFOS (7) AuerChaity Method (LC-MSMS) Sum PFHAS-PFOS (1) AuerChaity Method (LC-MSMS) PFNS AuerChaity Method (LC-MSMS) PFDS AuerChaity Method (LC-MSMS) PFDS AuerChaity Method (LC-MSMS) PFDA AuerChaity Method (LC-MSMS) PFDA AuerChaity Method (LC-MSMS) PFNA AuerChaity Method (LC-MSMS) PFNA AuerChaity Method (LC-MSMS) PFNA AuerChaity Method (LC-MSMS) PFNA AuerChaity Method (LC-MSMS) PFNA AuerChaity Method (LC-MSMS) PFNA AuerChaity Method (LC-MSMS) PFNA	PFHpS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
L-PFOS (5)	di-PFOS (5)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Total PFOS (7)	mono-PFOS (5)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Sum PFHsS-PFOS (1) <0.0010 µgf. AsureQuality Method (LC-MSANS) PFNS <0.0010	L-PFOS (5)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFNS 4,0010 µgl. AsureQuality Method (LC-MSIMS) PFDS 4,0050 µgl. AsureQuality Method (LC-MSIMS) PFDA 4,0050 µgl. AsureQuality Method (LC-MSIMS) PFPAA 4,0050 µgl. AsureQuality Method (LC-MSIMS) PFPAA 4,0010 µgl. AsureQuality Method (LC-MSIMS) PFHAA 4,0010 µgl. AsureQuality Method (LC-MSIMS) PFPDA 4,0010 µgl. AsureQuality Method (LC-MSIMS) PFDA 4,0010 µgl. AsureQuality Method (LC-MSIMS) PFTDA 4,0010 µgl. AsureQuality Method (LC-MSIMS) PFTDA 4,0010 µgl. AsureQuality Method (LC-MSIMS) PFTDA 4,0010 µgl. AsureQuality Method (LC-MSIMS)	Total PFOS (7)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFDS 4,00000 μg/L AsureQuality Method (LC-MSSMS) PFBA < 0,0000	Sum PFHxS+PFOS (1)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFDS 4,00000 μg/L AsureQuality Method (LC-MSSMS) PFBA < 0,0000	PFNS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
FFEAA < 0.0050 µg/L AsureQuality Method (LC-MS/MS) PFPAA < 0.0010	PFDS	<0.0050		AsureQuality Method (LC-MS/MS)
PFPeA < 0.0010 gg/L AsureQuality Method (LC-MS/MS) PFHAA < 0.0010	Perfluoroalkylcarboxylic acids			
PFHAA <0.0010 µg/L AsureQuality Method (LC-MS/MS) PFHAA <0.0010	PFBA	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
PFI-PIA < 0.0010 Ig/IL A sureQuality Method (I.C-MS/MS) PFOA < 0.0010	PFPeA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFOA < 0.0010 µg/L AsureQuality Method (LC-MS/MS) PFNA < 0.0010	PFHxA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFNA < 0.0010 μg/L AsureQuality Method (LC-MS/MS) PFDA < 0.0010	PFHpA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFDA < 0.0010 μg/L AsureQuality Method (LC-MS/MS) PFUnDA < 0.0050	PFOA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFUNDA <0.0050 μg/L AsureQuality Method (LC-MS/MS) PFDDA <0.025	PFNA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFDDDA <0.025 µg/L AsureQuality Method (LC-MS/MS) PFTrDA <0.025	PFDA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFTrDA < 0.025 μg/L AsureQuality Method (LC-MS/MS) PFTeDA < 0.10 μg/L AsureQuality Method (LC-MS/MS) Perfluorocotanesulfonamides FTOSA < 0.0010 μg/L AsureQuality Method (LC-MS/MS) NEIFOSA-M < 0.0050 μg/L AsureQuality Method (LC-MS/MS) NMEFOSA-M < 0.025 μg/L AsureQuality Method (LC-MS/MS) Perfluoroctanesulfonamidoacetic acids V V AsureQuality Method (LC-MS/MS) NMEFOSAA < 0.0010 μg/L AsureQuality Method (LC-MS/MS) NMEFOSAA < 0.0010 μg/L AsureQuality Method (LC-MS/MS) Perfluoroctanesulfonamidoathanois V V AsureQuality Method (LC-MS/MS) NMEFOSE-M < 0.025 μg/L AsureQuality Method (LC-MS/MS) NMEFOSE-M < 0.025 μg/L AsureQuality Method (LC-MS/MS) 42 FTS < 0.0010 μg/L AsureQuality Method (LC-MS/MS) 62 FTS < 0.0010 μg/L AsureQuality Method (LC-MS/MS) Internal Standards 87 % AsureQuality Method (LC-MS/MS)	PFUnDA	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
PFTeDA < 0.10 µg/L AsureQuality Method (LC-MS/MS) Perfluorocotanesulfonamidee FOSA < 0.0010 µg/L AsureQuality Method (LC-MS/MS) NEIFOSA-M < 0.0050 µg/L AsureQuality Method (LC-MS/MS) NMEFOSA-M < 0.025 µg/L AsureQuality Method (LC-MS/MS) NMEFOSAA < 0.0010 µg/L AsureQuality Method (LC-MS/MS) NMEFOSAA < 0.0010 µg/L AsureQuality Method (LC-MS/MS) Perfluorocotanesulfonamidoathanols yg/L AsureQuality Method (LC-MS/MS) NMEFOSE-M < 0.025 µg/L AsureQuality Method (LC-MS/MS) NMEFOSE-M < 0.025 µg/L AsureQuality Method (LC-MS/MS) MSEFOSE-M < 0.0010 µg/L AsureQuality Method (LC-MS/MS) £2 FTS < 0.0010 µg/L AsureQuality Method (LC-MS/MS) £2 FTS < 0.0010 µg/L AsureQuality Method (LC-MS/MS) £2 FTS < 0.0010 µg/L AsureQuality Method (LC-MS/MS) M3FFBA < 87 % AsureQuality Method (LC-MS/MS) M3FFBA	PFDoDA	<0.025	μg/L	AsureQuality Method (LC-MS/MS)
Perfluoroctanesulfonamides FOSA <0.0010 µg/L AsureQuality Method (LC-MS/MS) NEIFOSA-M <0.0050	PFTrDA	<0.025	μg/L	AsureQuality Method (LC-MS/MS)
PFOSA < 0.0010 µg/L AsureQuality Method (LC-MS/MS) NEIFOSA-M < 0.0050	PFTeDA	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
NETGOSA-M < 0.0050 µg/L AsureQuality Method (LC-MS/MS) NMeFOSA-M < 0.025 µg/L AsureQuality Method (LC-MS/MS) Perfluorooctanesulfonamidoacetic acids NEEFOSAA < 0.0010 µg/L AsureQuality Method (LC-MS/MS) NMeFOSAA < 0.0010 µg/L AsureQuality Method (LC-MS/MS) Perfluorooctanesulfonamidoethanols NEEFOSE-M < 0.025 µg/L AsureQuality Method (LC-MS/MS) NMeFOSEM < 0.025 µg/L AsureQuality Method (LC-MS/MS) Telomere Sulfonic acids 4:2 FTS < 0.0010 µg/L AsureQuality Method (LC-MS/MS) 8:2 FTS < 0.0010 µg/L AsureQuality Method (LC-MS/MS) Internal Standards 87 % AsureQuality Method (LC-MS/MS) M3PFBS 87 % AsureQuality Method (LC-MS/MS) M3PFBA 74 % AsureQuality Method (LC-MS/MS) M4PFBA 96 % AsureQuality Method (LC-MS/MS) M5PFPhpA 83	Perfluorooctanesulfonamides			
NMeFOSA-M <0.025 µg/L AsureQuality Method (LC-MS/MS) Perfluoroctanesulfonamidoacetic acids Verifluoroctanesulfonamidoacetic acids NEFOSAA <0.0010 µg/L AsureQuality Method (LC-MS/MS) NMeFOSAA <0.0010 µg/L AsureQuality Method (LC-MS/MS) Perfluoroctanesulfonamidoethanols Veriflooper Veriflooper AsureQuality Method (LC-MS/MS) NMeFOSE-M <0.025 µg/L AsureQuality Method (LC-MS/MS) Telomere Sulforic acids Veriflooper Veriflooper Veriflooper 4:2 FTS <0.0010 µg/L AsureQuality Method (LC-MS/MS) 8:2 FTS <0.0010 µg/L AsureQuality Method (LC-MS/MS) 8:2 FTS <0.0010 µg/L AsureQuality Method (LC-MS/MS) M3PFBS 87 % AsureQuality Method (LC-MS/MS) M3PFHS 74 % AsureQuality Method (LC-MS/MS) M3PFDA 96 % AsureQuality Method (LC-MS/MS) M3PFPBA 96 % AsureQuality Method (LC-MS/MS) M5PFPBA 96 % AsureQual	PFOSA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Perfluoroctanesulfonamidoacetic acids Verification Perfluoroctanesulfonamidoacetic acids NEIFOSAA <0.0010	NEtFOSA-M	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
NETFOSAA <0.0010 µg/L AsureQuality Method (LC-MS/MS) NMeFOSAA <0.0010 µg/L AsureQuality Method (LC-MS/MS) Perfluoroctanesulfonamidoethanols WEFOSE-M <0.025 µg/L AsureQuality Method (LC-MS/MS) NMeFOSE-M <0.025 µg/L AsureQuality Method (LC-MS/MS) Telomer Sulfonic acids 4:2 FTS <0.0010 µg/L AsureQuality Method (LC-MS/MS) 6:2 FTS <0.0010 µg/L AsureQuality Method (LC-MS/MS) 8:2 FTS <0.0010 µg/L AsureQuality Method (LC-MS/MS) 8:2 FTS <0.0010 µg/L AsureQuality Method (LC-MS/MS) M3PFBS 87 % AsureQuality Method (LC-MS/MS) M3PFHxS 74 % AsureQuality Method (LC-MS/MS) M4PFBA 96 % AsureQuality Method (LC-MS/MS) M5PFPeA 92 % AsureQuality Method (LC-MS/MS) M5PFHpA 83 % AsureQuality Method (LC-MS/MS) M8PFOA 78 % AsureQuality Method (LC-MS/MS)	NMeFOSA-M	<0.025	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSAA <0.0010 μg/L AsureQuality Method (LC-MS/MS) Perfluoroctanesulfonamidoethanols VERFOSE-M <0.025 μg/L AsureQuality Method (LC-MS/MS) NMeFOSE-M <0.025 μg/L AsureQuality Method (LC-MS/MS) Telomere Sulfonic acids VERTON (LC-MS/MS) VERTON (LC-MS/MS) 4:2 FTS <0.0010 μg/L AsureQuality Method (LC-MS/MS) 6:2 FTS <0.0010 μg/L AsureQuality Method (LC-MS/MS) 8:2 FTS <0.0010 μg/L AsureQuality Method (LC-MS/MS) Internal Standards M3PFBS 87 % AsureQuality Method (LC-MS/MS) M3PFBS 87 % AsureQuality Method (LC-MS/MS) M8PFOS 74 % AsureQuality Method (LC-MS/MS) M4PFBA 96 % AsureQuality Method (LC-MS/MS) M5PFPAA 92 % AsureQuality Method (LC-MS/MS) M5PFHyA 87 % AsureQuality Method (LC-MS/MS) M8PFOA 78 % AsureQuality Method (LC-MS/MS) M8PFOA 78 %	Perfluorooctanesulfonamidoacetic acids			
Perfluorooctanesulfonamidoethanols NEIFOSE-M <0.025	NEtFOSAA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
NEIFOSE-M <0.025 µg/L AsureQuality Method (LC-MS/MS) NMeFOSE-M <0.025 µg/L AsureQuality Method (LC-MS/MS) Telomere Sulfonic acids 4:2 FTS <0.0010	NMeFOSAA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSE-M <0.025 μg/L AsureQuality Method (LC-MS/MS) Telomere Sulfonic acids AsureQuality Method (LC-MS/MS) 4:2 FTS <0.0010	Perfluorooctanesulfonamidoethanols			
Telomere Sulfonic acids 4:2 FTS <0.0010	NEtFOSE-M	<0.025	μg/L	AsureQuality Method (LC-MS/MS)
4:2 FTS <0.0010	NMeFOSE-M	<0.025	μg/L	AsureQuality Method (LC-MS/MS)
6:2 FTS <0.0010 μg/L AsureQuality Method (LC-MS/MS) 8:2 FTS <0.0010				
8:2 FTS <0.0010 µg/L AsureQuality Method (LC-MS/MS) Internal Standards M3PFBS 87 % AsureQuality Method (LC-MS/MS) M3PFHxS 74 % AsureQuality Method (LC-MS/MS) M8PFOS 74 % AsureQuality Method (LC-MS/MS) M4PFBA 96 % AsureQuality Method (LC-MS/MS) M5PFPeA 92 % AsureQuality Method (LC-MS/MS) M5PFHxA 87 % AsureQuality Method (LC-MS/MS) MPFHpA 83 % AsureQuality Method (LC-MS/MS) M8PFOA 78 % AsureQuality Method (LC-MS/MS) M9PFNA 73 % AsureQuality Method (LC-MS/MS) M6PFDA 71 % AsureQuality Method (LC-MS/MS)				
Internal Standards M3PFBS 87 % AsureQuality Method (LC-MS/MS) M3PFHxS 74 % AsureQuality Method (LC-MS/MS) M8PFOS 74 % AsureQuality Method (LC-MS/MS) M4PFBA 96 % AsureQuality Method (LC-MS/MS) M5PFPeA 92 % AsureQuality Method (LC-MS/MS) M5PFHxA 87 % AsureQuality Method (LC-MS/MS) MPFHpA 83 % AsureQuality Method (LC-MS/MS) M8PFOA 78 % AsureQuality Method (LC-MS/MS) M9PFNA 73 % AsureQuality Method (LC-MS/MS) M6PFDA 71 % AsureQuality Method (LC-MS/MS)				<u> </u>
M3PFBS 87 % AsureQuality Method (LC-MS/MS) M3PFHxS 74 % AsureQuality Method (LC-MS/MS) M8PFOS 74 % AsureQuality Method (LC-MS/MS) M4PFBA 96 % AsureQuality Method (LC-MS/MS) M5PFPeA 92 % AsureQuality Method (LC-MS/MS) M5PFHxA 87 % AsureQuality Method (LC-MS/MS) MPFHpA 83 % AsureQuality Method (LC-MS/MS) M8PFOA 78 % AsureQuality Method (LC-MS/MS) M9PFNA 73 % AsureQuality Method (LC-MS/MS) M6PFDA 71 % AsureQuality Method (LC-MS/MS)		<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
M3PFHxS 74 % AsureQuality Method (LC-MS/MS) M8PFOS 74 % AsureQuality Method (LC-MS/MS) M4PFBA 96 % AsureQuality Method (LC-MS/MS) M5PFPeA 92 % AsureQuality Method (LC-MS/MS) M5PFHxA 87 % AsureQuality Method (LC-MS/MS) MPFHpA 83 % AsureQuality Method (LC-MS/MS) M8PFOA 78 % AsureQuality Method (LC-MS/MS) M9PFNA 73 % AsureQuality Method (LC-MS/MS) M6PFDA 71 % AsureQuality Method (LC-MS/MS)		07	0/	A
M8PFOS 74 % AsureQuality Method (LC-MS/MS) M4PFBA 96 % AsureQuality Method (LC-MS/MS) M5PFPeA 92 % AsureQuality Method (LC-MS/MS) M5PFHxA 87 % AsureQuality Method (LC-MS/MS) MPFHpA 83 % AsureQuality Method (LC-MS/MS) M8PFOA 78 % AsureQuality Method (LC-MS/MS) M9PFNA 73 % AsureQuality Method (LC-MS/MS) M6PFDA 71 % AsureQuality Method (LC-MS/MS)				• • • • • • • • • • • • • • • • • • • •
M4PFBA 96 % AsureQuality Method (LC-MS/MS) M5PFPeA 92 % AsureQuality Method (LC-MS/MS) M5PFHxA 87 % AsureQuality Method (LC-MS/MS) MPFHpA 83 % AsureQuality Method (LC-MS/MS) M8PFOA 78 % AsureQuality Method (LC-MS/MS) M9PFNA 73 % AsureQuality Method (LC-MS/MS) M6PFDA 71 % AsureQuality Method (LC-MS/MS)				
M5PFPeA 92 % AsureQuality Method (LC-MS/MS) M5PFHxA 87 % AsureQuality Method (LC-MS/MS) MPFHpA 83 % AsureQuality Method (LC-MS/MS) M8PFOA 78 % AsureQuality Method (LC-MS/MS) M9PFNA 73 % AsureQuality Method (LC-MS/MS) M6PFDA 71 % AsureQuality Method (LC-MS/MS)				
M5PFHxA 87 % AsureQuality Method (LC-MS/MS) MPFHpA 83 % AsureQuality Method (LC-MS/MS) M8PFOA 78 % AsureQuality Method (LC-MS/MS) M9PFNA 73 % AsureQuality Method (LC-MS/MS) M6PFDA 71 % AsureQuality Method (LC-MS/MS)				
MPFHpA 83 % AsureQuality Method (LC-MS/MS) M8PFOA 78 % AsureQuality Method (LC-MS/MS) M9PFNA 73 % AsureQuality Method (LC-MS/MS) M6PFDA 71 % AsureQuality Method (LC-MS/MS)				
M8PFOA 78 % AsureQuality Method (LC-MS/MS) M9PFNA 73 % AsureQuality Method (LC-MS/MS) M6PFDA 71 % AsureQuality Method (LC-MS/MS)				
M9PFNA 73 % AsureQuality Method (LC-MS/MS) M6PFDA 71 % AsureQuality Method (LC-MS/MS)	<u> </u>			
M6PFDA 71 % AsureQuality Method (LC-MS/MS)				
M7PFUnDA 85 % AsureQuality Method (LC-MS/MS)				
	M7PFUnDA	85	%	AsureQuality Method (LC-MS/MS)

Test	Result	Unit	Method Reference
MPFDoDA	82	%	AsureQuality Method (LC-MS/MS)
MPFTeDA	87	%	AsureQuality Method (LC-MS/MS)
MPFOSA	88	%	AsureQuality Method (LC-MS/MS)
DNEtFOSA	88	%	AsureQuality Method (LC-MS/MS)
DNMeFOSA	72	%	AsureQuality Method (LC-MS/MS)
DNEtFOSAA	77	%	AsureQuality Method (LC-MS/MS)
DNMeFOSAA	75	%	AsureQuality Method (LC-MS/MS)
DNEtFOSE	82	%	AsureQuality Method (LC-MS/MS)
DNMeFOSE	83	%	AsureQuality Method (LC-MS/MS)
M4:2FTS	87	%	AsureQuality Method (LC-MS/MS)
M6:2FTS	65	%	AsureQuality Method (LC-MS/MS)
M8:2FTS	73	%	AsureQuality Method (LC-MS/MS)
ustomer Sample Name: QAQC05			AsureQuality ID: 18-213620-5
mple Description: Groundwater			
ample Condition: Acceptable	Sampled Date: 22-Aug-2018		
Test	Result	Unit	Method Reference
oly- and Perfluorinated Alkyl Substances (PFAS) in Wate	er		
Perfluoroalkylsulfonic acids			
PFPrS *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PFBS *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PFPeS *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
di-PFHxS (1) *	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
mono-PFHxS (1) *	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
L-PFHxS (1) *	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
Total PFHxS (3) *	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
PFHpS *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
di-PFOS (5) *	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
mono-PFOS (5) *	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
L-PFOS (5) *	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
Total PFOS (7) *	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
Sum PFHxS+PFOS (1) *	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
PFNS *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PFDS *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
Perfluoroalkylcarboxylic acids			
PFBA *	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
PFPeA *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PFHxA *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PFHpA *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PFOA *	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
PFNA *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PFDA *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PFUnDA *	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
PFDoDA *	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
PFTrDA *	<0.20	μg/L	AsureQuality Method (LC-MS/MS)
PFTeDA *	<0.20	μg/L	AsureQuality Method (LC-MS/MS)
·			
Perfluorooctanesulfonamides			
	<0.10	μg/L	AsureQuality Method (LC-MS/MS)

Total PFHxS (3) *

Test	Result	Unit	Method Reference
NMeFOSA-M *	<0.20	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamidoacetic acids			
NEtFOSAA *	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSAA *	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamidoethanols			
NEtFOSE-M *	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSE-M *	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
Telomere Sulfonic acids			
4:2 FTS *	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
6:2 FTS *	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
8:2 FTS *	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
Internal Standards			
M3PFBS *	107	%	AsureQuality Method (LC-MS/MS)
M3PFHxS *	112	%	AsureQuality Method (LC-MS/MS)
M8PFOS *	111	%	AsureQuality Method (LC-MS/MS)
M4PFBA *	107	%	AsureQuality Method (LC-MS/MS)
M5PFPeA *	103	%	AsureQuality Method (LC-MS/MS)
M5PFHxA *	108	%	AsureQuality Method (LC-MS/MS)
MPFHpA *	108	%	AsureQuality Method (LC-MS/MS)
M8PFOA *	111	%	AsureQuality Method (LC-MS/MS)
M9PFNA *	116	%	AsureQuality Method (LC-MS/MS)
M6PFDA *	107	%	AsureQuality Method (LC-MS/MS)
M7PFUnDA *	111	%	AsureQuality Method (LC-MS/MS)
MPFDoDA *	113	%	AsureQuality Method (LC-MS/MS)
MPFTeDA *	103	%	AsureQuality Method (LC-MS/MS)
MPFOSA *	110	%	AsureQuality Method (LC-MS/MS)
DNEtFOSA *	111	%	AsureQuality Method (LC-MS/MS)
DNMeFOSA *	116	%	AsureQuality Method (LC-MS/MS)
DNEtFOSAA *	107	%	AsureQuality Method (LC-MS/MS)
DNMeFOSAA *	107	%	AsureQuality Method (LC-MS/MS)
	115	% %	, ,
DNEtFOSE *			AsureQuality Method (LC-MS/MS)
DNMeFOSE *	114	%	AsureQuality Method (LC-MS/MS)
M4:2FTS *	110	%	AsureQuality Method (LC-MS/MS)
M6:2FTS *	112	%	AsureQuality Method (LC-MS/MS)
M8:2FTS *	106	%	AsureQuality Method (LC-MS/MS)
Customer Sample Name: Duplicate of 18-213620-5A			AsureQuality ID: 18-213620-8
ample Description: QAQC05			
Sample Condition: Acceptable	Sampled Date: 22-Aug-2018		
Test	Result	Unit	Method Reference
oly- and Perfluorinated Alkyl Substances (PFAS) in Wa	ter		
Perfluoroalkylsulfonic acids			
PFPrS *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PFBS *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PFPeS *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
di-PFHxS (1) *	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
mono-PFHxS (1) *	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
L-PFHxS (1) *	<0.010	μg/L	AsureQuality Method (LC-MS/MS)

<0.010

μg/L

AsureQuality Method (LC-MS/MS)

Test	Result	Unit	Method Reference
PFHpS *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
di-PFOS (5) *	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
mono-PFOS (5) *	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
L-PFOS (5) *	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
Total PFOS (7) *	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
Sum PFHxS+PFOS (1) *	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
PFNS *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PFDS *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
Perfluoroalkylcarboxylic acids			
PFBA *	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
PFPeA *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PFHxA *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PFHpA *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PFOA *	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
PFNA *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PFDA *	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PFUnDA *	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
PFDoDA *	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
PFTrDA *	<0.20	μg/L	AsureQuality Method (LC-MS/MS)
PFTeDA *	<0.20	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamides			
PFOSA*	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
NEtFOSA-M *	<0.20	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSA-M *	<0.20	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamidoacetic acids			
NEtFOSAA *	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSAA *	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamidoethanols			
NEtFOSE-M *	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSE-M *	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
Telomere Sulfonic acids			
4:2 FTS *	<0.10	μg/L 	AsureQuality Method (LC-MS/MS)
6:2 FTS *	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
8:2 FTS *	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
Internal Standards	405	0/	A 0 5 M H 1 (0 M 0 M 0)
M3PFBS *	105	%	AsureQuality Method (LC-MS/MS)
M3PFHxS *	111	%	AsureQuality Method (LC-MS/MS)
M8PFOS *	111	%	AsureQuality Method (LC-MS/MS)
M4PFBA *	103	%	AsureQuality Method (LC-MS/MS)
M5PFPeA *	103	%	AsureQuality Method (LC-MS/MS)
M5PFHxA *	106	%	AsureQuality Method (LC-MS/MS)
MPFHpA *	106	%	AsureQuality Method (LC-MS/MS)
M8PFOA *	107	%	AsureQuality Method (LC-MS/MS)
M9PFNA *	110	%	AsureQuality Method (LC-MS/MS)
M6PFDA *	115	%	AsureQuality Method (LC-MS/MS)
M7PFUnDA *	107	%	AsureQuality Method (LC-MS/MS)
MPFDoDA *	119	%	AsureQuality Method (LC-MS/MS)
MPFTeDA *	117	%	AsureQuality Method (LC-MS/MS)
MPFOSA*	108	%	AsureQuality Method (LC-MS/MS)

Test	Result	Unit	Method Reference
DNEtFOSA *	110	%	AsureQuality Method (LC-MS/MS)
DNMeFOSA *	112	%	AsureQuality Method (LC-MS/MS)
DNEtFOSAA *	109	%	AsureQuality Method (LC-MS/MS)
DNMeFOSAA *	106	%	AsureQuality Method (LC-MS/MS)
DNEtFOSE *	115	%	AsureQuality Method (LC-MS/MS)
DNMeFOSE *	114	%	AsureQuality Method (LC-MS/MS)
M4:2FTS *	107	%	AsureQuality Method (LC-MS/MS)
M6:2FTS *	108	%	AsureQuality Method (LC-MS/MS)
M8:2FTS *	105	%	AsureQuality Method (LC-MS/MS)

QC Results

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Relates to sample(s) 18-213620-1, 18-213620-4

est	Result	Unit	Method Reference
oly- and Perfluorinated Alkyl Substances (PFAS)) in Water		
Perfluoroalkylsulfonic acids			
PFPrS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFBS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFPeS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
di-PFHxS (1)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
mono-PFHxS (1)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
L-PFHxS (1)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Total PFHxS (3)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFHpS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
di-PFOS (5)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
mono-PFOS (5)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
L-PFOS (5)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Total PFOS (7)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Sum PFHxS+PFOS (1)	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFNS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFDS	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
Perfluoroalkylcarboxylic acids			
PFBA	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
PFPeA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFHxA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFHpA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFOA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFNA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFDA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
PFUnDA	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)
PFDoDA	<0.025	μg/L	AsureQuality Method (LC-MS/MS)
PFTrDA	<0.025	μg/L	AsureQuality Method (LC-MS/MS)
PFTeDA	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamides			
PFOSA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
NEtFOSA-M	<0.0050	μg/L	AsureQuality Method (LC-MS/MS)

est	Result	Unit	Method Reference
NMeFOSA-M	<0.025	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamidoacetic acids			
NEtFOSAA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSAA	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamidoethanols			
NEtFOSE-M	<0.025	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSE-M	<0.025	μg/L	AsureQuality Method (LC-MS/MS)
Telomere Sulfonic acids			
4:2 FTS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
6:2 FTS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
8:2 FTS	<0.0010	μg/L	AsureQuality Method (LC-MS/MS)
Internal Standards			
M3PFBS	90	%	AsureQuality Method (LC-MS/MS)
M3PFHxS	72	%	AsureQuality Method (LC-MS/MS)
M8PFOS	66	%	AsureQuality Method (LC-MS/MS)
M4PFBA	98	%	AsureQuality Method (LC-MS/MS)
M5PFPeA	96	%	AsureQuality Method (LC-MS/MS)
M5PFHxA	94	%	AsureQuality Method (LC-MS/MS)
MPFHpA	86	%	AsureQuality Method (LC-MS/MS)
M8PFOA	76	%	AsureQuality Method (LC-MS/MS)
M9PFNA	70	%	AsureQuality Method (LC-MS/MS)
M6PFDA	71	%	AsureQuality Method (LC-MS/MS)
M7PFUnDA	84	%	AsureQuality Method (LC-MS/MS)
MPFDoDA	94	%	AsureQuality Method (LC-MS/MS)
MPFTeDA	86	%	AsureQuality Method (LC-MS/MS)
MPFOSA	85	%	AsureQuality Method (LC-MS/MS)
DNEtFOSA	105	%	AsureQuality Method (LC-MS/MS)
DNMeFOSA	108	%	AsureQuality Method (LC-MS/MS)
DNEtFOSAA	69	%	AsureQuality Method (LC-MS/MS)
DNMeFOSAA	64	%	AsureQuality Method (LC-MS/MS)
DNEtFOSE	83	%	AsureQuality Method (LC-MS/MS)
DNMeFOSE	83	%	AsureQuality Method (LC-MS/MS)
M4:2FTS	99	%	AsureQuality Method (LC-MS/MS)
M6:2FTS	82	%	AsureQuality Method (LC-MS/MS)
M8:2FTS	70	%	AsureQuality Method (LC-MS/MS)

Blank

Relates to sample(s) 18-213620-5, 18-213620-8

Test	Result	Unit	Method Reference		
oly- and Perfluorinated Alkyl Substances (PFAS) in Water					
Perfluoroalkylsulfonic acids					
PFPrS	<0.050	μg/L	AsureQuality Method (LC-MS/MS)		
PFBS	<0.050	μg/L	AsureQuality Method (LC-MS/MS)		
PFPeS	<0.050	μg/L	AsureQuality Method (LC-MS/MS)		
di-PFHxS (1)	<0.010	μg/L	AsureQuality Method (LC-MS/MS)		
mono-PFHxS (1)	<0.010	μg/L	AsureQuality Method (LC-MS/MS)		
L-PFHxS (1)	<0.010	μg/L	AsureQuality Method (LC-MS/MS)		

est	Result	Unit	Method Reference
Total PFHxS (3)	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
PFHpS	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
di-PFOS (5)	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
mono-PFOS (5)	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
L-PFOS (5)	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
Total PFOS (7)	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
Sum PFHxS+PFOS (1)	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
PFNS	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PFDS	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
Perfluoroalkylcarboxylic acids			
PFBA	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
PFPeA	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PFHxA	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PFHpA	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PFOA	<0.010	μg/L	AsureQuality Method (LC-MS/MS)
PFNA	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PFDA	<0.050	μg/L	AsureQuality Method (LC-MS/MS)
PFUnDA	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
PFDoDA	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
PFTrDA	<0.20	μg/L	AsureQuality Method (LC-MS/MS)
PFTeDA	<0.20	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamides			
PFOSA	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
NEtFOSA-M	<0.20	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSA-M	<0.20	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamidoacetic acids			
NEtFOSAA	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSAA	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
Perfluorooctanesulfonamidoethanols			
NEtFOSE-M	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
NMeFOSE-M	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
Telomere Sulfonic acids			
4:2 FTS	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
6:2 FTS	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
8:2 FTS	<0.10	μg/L	AsureQuality Method (LC-MS/MS)
Internal Standards			
M3PFBS	109	%	AsureQuality Method (LC-MS/MS)
M3PFHxS	113	%	AsureQuality Method (LC-MS/MS)
M8PFOS	113	%	AsureQuality Method (LC-MS/MS)
M4PFBA	106	%	AsureQuality Method (LC-MS/MS)
M5PFPeA	105	%	AsureQuality Method (LC-MS/MS)
M5PFHxA	107	%	AsureQuality Method (LC-MS/MS)
MPFHpA	106	%	AsureQuality Method (LC-MS/MS)
M8PFOA	112	%	AsureQuality Method (LC-MS/MS)
M9PFNA	112	%	AsureQuality Method (LC-MS/MS)
M6PFDA	114	%	AsureQuality Method (LC-MS/MS)

Test	Result	Unit	Method Reference
M7PFUnDA	112	%	AsureQuality Method (LC-MS/MS)
MPFDoDA	110	%	AsureQuality Method (LC-MS/MS)
MPFTeDA	104	%	AsureQuality Method (LC-MS/MS)
MPFOSA	111	%	AsureQuality Method (LC-MS/MS)
DNEtFOSA	108	%	AsureQuality Method (LC-MS/MS)
DNMeFOSA	111	%	AsureQuality Method (LC-MS/MS)
DNEtFOSAA	111	%	AsureQuality Method (LC-MS/MS)
DNMeFOSAA	106	%	AsureQuality Method (LC-MS/MS)
DNEtFOSE	114	%	AsureQuality Method (LC-MS/MS)
DNMeFOSE	112	%	AsureQuality Method (LC-MS/MS)
M4:2FTS	112	%	AsureQuality Method (LC-MS/MS)
M6:2FTS	111	%	AsureQuality Method (LC-MS/MS)
M8:2FTS	116	%	AsureQuality Method (LC-MS/MS)

Analysis Summary

Wellington Laboratory

Analysis	Method	Accreditation	Authorised by
Poly- and Perfluorinated Alkyl Substances (PFAS) in Water			
DX-PFCS01, 03-SUITE_B	AsureQuality Method (LC-MS/MS)	IANZ	Cameron Evans

di-PFHxS (1) = Concentration determined using a branched di-PFHxS isomer standard (399>80 transition)

mono-PFHxS (1) = Concentration determined using a branched mono-PFHxS isomer standard (399>80 transition)

L-PFHxS (1) = Concentration determined using the linear PFHxS isomer standard (399>80 transition)

Total PFHxS (3) = The numerical sum of di-PFHxS (1), mono-PFHxS (1), and L-PFHxS (1)

di-PFOS (5) = Concentration determined using a branched di-PFOS isomer standard (499>80 transition)

mono-PFOS (5) = Concentration determined using a branched mono-PFOS isomer standard (499>80 transition)

L-PFOS (5) = Concentration determined using the linear PFOS isomer standard (499>230 transition)

Total PFOS (7) = The numerical sum of di-PFOS (5), mono-PFOS (5), and L-PFOS (5)

Sum PFHxS+PFOS (1) = The numerical sum of Total PFHxS (3) and Total PFOS (7)

For all Totals, where a component is detected below the LOR, the value of zero is used in the calculation of the sum. The result represents the lower-bound concentration present in the sample

Reported results are corrected for internal standard recovery

Any tests marked with * are not accredited for specific matrices or analytes.

Results that are prefixed with '<' indicate the lowest level at which the analyte can be reported, and that in this case the analyte was not observed above this limit.

Cameron Evans

Accreditation

Report Number: 1243429

Scientist



Report Issued: 20-Sep-2018

Appendix

Analyte LOR Summary

Poly- and Perfluorinated Alky	d Substances (PFAS) in Water	 AsureQuality Method (LC-MS/MS)

Analyte LOR (µg/L)

Listing applies to samples: 18-213620-5, 18-213620-8

Perfluoroalkylsulfonic acids

PFPrS*	0.0010
PFBS*	0.0010
PFPeS*	0.0010
di-PFHxS (1)*	0.0010
mono-PFHxS (1)*	0.0010
L-PFHxS (1)*	0.0010
Total PFHxS (3)*	0.0010
PFHpS*	0.0010
di-PFOS (5)*	0.0010
mono-PFOS (5)*	0.0010
L-PFOS (5)*	0.0010
Total PFOS (7)*	0.0010
Sum PFHxS+PFOS (1)*	0.0010
PFNS*	0.0010
PFDS*	0.0010

Perfluoroalkylcarboxylic acids

PFBA*	0.0010
PFPeA*	0.0010
PFHxA*	0.0010
PFHpA*	0.0010
PFOA*	0.0010
PFNA*	0.0010
PFDA*	0.0010
PFUnDA*	0.0010
PFDoDA*	0.0010
PFTrDA*	0.0010
PFTeDA*	0.0010

Perfluorooctanesulfonamides

 PFOSA*
 0.0010

 NEtFOSA-M*
 0.0010

 NMeFOSA-M*
 0.0010

Perfluorooctanesulfonamidoacetic acids

 NEtFOSAA*
 0.0010

 NMeFOSAA*
 0.0010

Perfluorooctanesulfonamidoethanols

NEtFOSE-M* 0.0010 NMeFOSE-M* 0.0010

Telomere Sulfonic acids

4:2 FTS* 0.0010 6:2 FTS* 0.0010 8:2 FTS* 0.0010

Listing applies to samples: 18-213620-1, 18-213620-4

 PFPrS
 0.0010

 PFBS
 0.0010

 PFPeS
 0.0010

di-PFHxS (1)	0.0010
mono-PFHxS (1)	0.0010
L-PFHxS (1)	0.0010
Total PFHxS (3)	0.0010
PFHpS	0.0010
di-PFOS (5)	0.0010
mono-PFOS (5)	0.0010
L-PFOS (5)	0.0010
Total PFOS (7)	0.0010
Sum PFHxS+PFOS (1)	0.0010
PFNS	0.0010
PFDS	0.0010
Perfluoroalkylcarboxylic acids	
PFBA	0.0010
PFPeA	0.0010
PFHxA	0.0010
PFHpA	0.0010
PFOA	0.0010
PFNA	0.0010
PFDA	0.0010
PFUnDA	0.0010
PFDoDA	0.0010
PFTrDA	0.0010
PFTeDA	0.0010
Perfluorooctanesulfonamides	
PFOSA	0.0010
NEtFOSA-M	0.0010
NMeFOSA-M	0.0010
Perfluorooctanesulfonamidoacetic acids	
NEtFOSAA	0.0010
NMeFOSAA	0.0010
Perfluorooctanesulfonamidoethanols	
NEtFOSE-M	0.0010
NMeFOSE-M	0.0010
Telomere Sulfonic acids	
4:2 FTS	0.0010
6:2 FTS	0.0010
8:2 FTS	0.0010

Analyte Definitions

Poly- and Perfluorinated Alkyl Substances (PFAS) in Water - AsureQuality Method (LC-MS/MS)

Analyte Full Name Listing applies to samples: 18-213620-5, 18-213620-8

Perfluoroalkylsulfonic acids

PFPrS* Perfluoro-1-propanesulfonic acid

PFBS* Perfluoro-1-butanesulfonic acid

PFPeS* Perfluoro-1-pentanesulfonic acid

di-PFHxS (1)* Total Perfluorodimethylbutane sulfonic acids mono-PFHxS (1)* Total Perfluoromethylpentane sulfonic acids L-PFHxS (1)* Linear Perfluorohexanesulfonic acid
PFHpS* Perfluoro-1-heptanesulfonic acid

di-PFOS (5)* Total Perfluorodimethylhexane sulfonic acids mono-PFOS (5)* Total Perfluoromethylheptane sulfonic acids

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Analyte Full Name

L-PFOS (5)* Linear Perfluorooctanesulfonic acid
PFNS* Perfluoro-1-nonanesulfonic acid
PFDS* Perfluoro-1-decanesulfonic acid

Perfluoroalkylcarboxylic acids

PFBA* Perfluoro-n-butanoic acid PFPeA* Perfluoro-n-pentanoic acid PFHxA* Perfluoro-n-hexanoic acid PFHpA* Perfluoro-n-heptanoic acid PFOA* Perfluoro-n-octanoic acid PFNA* Perfluoro-n-nonanoic acid PFDA* Perfluoro-n-decanoic acid PFUnDA* Perfluoro-n-undecanoic acid PFDoDA* Perfluoro-n-dodecanoic acid PFTrDA* Perfluoro-n-tridecanoic acid PFTeDA* Perfluoro-n-tetradecanoic acid

Perfluorooctanesulfonamides

PFOSA* Perfluoro-1-octanesulfonamide

NEtFOSA-M* N-ethylperfluoro-1-octanesulfonamide

NMeFOSA-M* N-methylperfluoro-1-octanesulfonamide

Perfluorooctanesulfonamidoacetic acids

NEtFOSAA* N-ethylperfluoro-1-octanesulfonamidoacetic acid
NMeFOSAA* N-methylperfluoro-1-octanesulfonamidoacetic acid

Perfluorooctanesulfonamidoethanols

NEtFOSE-M*

2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol

NMeFOSE-M*

2-(N-methylperfluoro-1-octanesulfonamido)-ethanol

Telomere Sulfonic acids

4:2 FTS* 1H,1H,2H,2H-perfluoro-1-hexanesulfonic acid
6:2 FTS* 1H,1H,2H,2H-perfluoro-1-octanesulfonic acid
8:2 FTS* 1H,1H,2H,2H-perfluoro-1-decanesulfonic acid

Internal Standards

M3PFBS* Perfluoro-1-[2,3,4-13C3]butanesulfonic acid M3PFHxS* Perfluoro-1-[1,2,3-13C3]hexanesulfonic acid M8PFOS* Perfluoro-1-[13C8]octanesulfonic acid M4PFBA* Perfluoro-n-[1,2,3,4-13C4]butanoic acid M5PFPeA* Perfluoro-n-[1,2,3,4,5-13C5]pentanoic acid M5PFHxA* Perfluoro-n-[1,2,3,4,6-13C5]hexanoic acid MPFHpA* Perfluoro-n-[-1,2,3,4-13C4]heptanoic acid M8PFOA* Perfluoro-n-[13C8]octanoic acid M9PFNA* Perfluoro-n-[13C9]nonanoic acid

M6PFDA* Perfluoro-n-[1,2,3,4,5,6-13C6]decanoic acid
M7PFUnDA* Perfluoro-n-[1,2,3,4,5,6,7-13C7]undecanoic acid

MPFDoDA* Perfluoro-n-[1,2-13C2]dodecanoic acid MPFTeDA* Perfluoro-n-[1,2-13C2]tetradecanoic acid MPFOSA* Perfluoro-1-[13C8]octanesulfonamide DNEtFOSA* N-ethyl-D5-perfluoro-1-octanesulfonamide DNMeFOSA* N-methyl-D3-perfluoro-1-octanesulfonamide DNEtFOSAA* N-ethyl-D5-perfluoro-1-octanesulfonamidoacetic acid DNMeFOSAA* N-methyl-D3-perfluoro-1-octanesulfonamidoacetic acid DNFtFOSF* 2-(N-ethyl-D5-perfluoro-1-octanesulfonamido)ethan-D4-ol DNMeFOSE* 2-(N-methyl-D3-perfluoro-1-octanesulfonamido)ethan-D4-ol M4:2FTS* 1H,1H,2H,2H-perfluoro-1-[1,2-13C2]-hexane sulfonic acid M6:2FTS 1H,1H,2H,2H-perfluoro-1-[1,2-13C2]-octane sulfonic acid M8:2FTS* 1H,1H,2H,2H-perfluoro-1-[1,2-13C2]-decane sulfonic acid

Report Issued: 20-Sep-2018

Analyte Full Name
Listing applies to samples: 18-213620-1, 18-213620-4

Perfluoroalkylsulfonic acids

PFPrS Perfluoro-1-propanesulfonic acid
PFBS Perfluoro-1-butanesulfonic acid
PFPeS Perfluoro-1-pentanesulfonic acid

di-PFHxS (1)

Total Perfluorodimethylbutane sulfonic acids
mono-PFHxS (1)

Total Perfluoromethylpentane sulfonic acids
L-PFHxS (1)

Linear Perfluorohexanesulfonic acid

PFHpS

Perfluoro-1-heptanesulfonic acid

di-PFOS (5)

Total Perfluorodimethylhexane sulfonic acids
mono-PFOS (5)

Total Perfluoromethylheptane sulfonic acids
L-PFOS (5)

Linear Perfluoroctanesulfonic acid

PFNS

Perfluoro-1-nonanesulfonic acid

PFDS

Perfluoro-1-decanesulfonic acid

Perfluoroalkylcarboxylic acids

PFBA Perfluoro-n-butanoic acid PFPeA Perfluoro-n-pentanoic acid PFHxA Perfluoro-n-hexanoic acid PFHpA Perfluoro-n-heptanoic acid PFOA Perfluoro-n-octanoic acid PFNA Perfluoro-n-nonanoic acid PFDA Perfluoro-n-decanoic acid PFUnDA Perfluoro-n-undecanoic acid **PFDoDA** Perfluoro-n-dodecanoic acid PFTrDA Perfluoro-n-tridecanoic acid PFTeDA Perfluoro-n-tetradecanoic acid

Perfluorooctanesulfonamides

PFOSA Perfluoro-1-octanesulfonamide

NEtFOSA-M N-ethylperfluoro-1-octanesulfonamide

NMeFOSA-M N-methylperfluoro-1-octanesulfonamide

Perfluorooctanesulfonamidoacetic acids

NEtFOSAA N-ethylperfluoro-1-octanesulfonamidoacetic acid
NMeFOSAA N-methylperfluoro-1-octanesulfonamidoacetic acid

Perfluorooctanesulfonamidoethanols

NEtFOSE-M 2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol
NMeFOSE-M 2-(N-methylperfluoro-1-octanesulfonamido)-ethanol

Telomere Sulfonic acids

4:2 FTS 1H,1H,2H,2H-perfluoro-1-hexanesulfonic acid
6:2 FTS 1H,1H,2H,2H-perfluoro-1-octanesulfonic acid
8:2 FTS 1H,1H,2H,2H-perfluoro-1-decanesulfonic acid

Internal Standards

M3PFBS Perfluoro-1-[2,3,4-13C3]butanesulfonic acid M3PFHxS Perfluoro-1-[1,2,3-13C3]hexanesulfonic acid M8PFOS Perfluoro-1-[13C8]octanesulfonic acid M4PFBA Perfluoro-n-[1,2,3,4-13C4]butanoic acid M5PFPeA Perfluoro-n-[1,2,3,4,5-13C5]pentanoic acid M5PFHxA Perfluoro-n-[1,2,3,4,6-13C5]hexanoic acid MPFHpA Perfluoro-n-[-1,2,3,4-13C4]heptanoic acid M8PFOA Perfluoro-n-[13C8]octanoic acid M9PFNA Perfluoro-n-[13C9]nonanoic acid

M6PFDA Perfluoro-n-[1,2,3,4,5,6-13C6]decanoic acid
M7PFUnDA Perfluoro-n-[1,2,3,4,5,6,7-13C7]undecanoic acid
MPFDoDA Perfluoro-n-[1,2-13C2]dodecanoic acid

MPFTeDA

Perfluoro-n-[1,2-13C2]tetradecanoic acid

AsureQuality Reference: 18-213620 Report Issued: 20-Sep-2018

Analyte Full Name

MPFOSA Perfluoro-1-[13C8]octanesulfonamide DNEtFOSA N-ethyl-D5-perfluoro-1-octanesulfonamide DNMeFOSA N-methyl-D3-perfluoro-1-octanesulfonamide DNEtFOSAA N-ethyl-D5-perfluoro-1-octanesulfonamidoacetic acid DNMeFOSAA N-methyl-D3-perfluoro-1-octanesulfonamidoacetic acid DNEtFOSE 2-(N-ethyl-D5-perfluoro-1-octanesulfonamido)ethan-D4-ol DNMeFOSE 2-(N-methyl-D3-perfluoro-1-octanesulfonamido)ethan-D4-ol M4:2FTS 1H,1H,2H,2H-perfluoro-1-[1,2-13C2]-hexane sulfonic acid M6:2FTS 1H,1H,2H,2H-perfluoro-1-[1,2-13C2]-octane sulfonic acid M8:2FTS 1H,1H,2H,2H-perfluoro-1-[1,2-13C2]-decane sulfonic acid

Any tests marked with * are not accredited for specific matrices or analytes.

LOR = Limit of Reporting LOD = Limit of Detection NR = Not Reportable



AsureQuality Food and Environmental Submission Form/Chain of Custody

Customer Details Company Name: * Taranaki Regional Council		Reporting Details Report Results To: sean.hudgens@aecom.com		2.00 2.00 2.00 2.00 3.00 3.00 3.00 3.00	18-21240	0		
Contact Person: Callum	Mackenzie	Extra Copies	То:		Asu	reQuality Limited		
25						ington Laboratory		
Email:*callum.mackenzie@trc.govt.nz Contact Phone No.:*06 765 7127 Address:		Report each sample separately?* If multiple samples are listed below, tick yes to receive an individual CoA for each sample. Sample Sent By (Name):*Rebecca Joyce Signed By:*			Lowe New Tel: +	1C Quadrant Drive, Waiwhetu Lower Hutt 5010 New Zealand Tel: +64 4 570 8359 Email: GracefieldSR@asurequality.com		
		Date/Time Di	L -COURT TES-UN TOUCH CHES	ADERO _ B.S.			Janty.com	
Submission Ref.:		Condition sample(s) dispatched in: Ambient Chilled Frozen Quarantine (include a copy of the MPI Import Permit/Transfer Form stating country of origin) Return sample(s) after analysis (Courier fees apply) NOTE: Samples will be discarded/returned 8 weeks after reporting unless otherwise instructed.			ozen	Urgency Details* ■ Normal Turn-around-time (TAT) □ Urgent Service (µlease select from options below) □ Half quoted TAT (50% surcharge)		
Purchase Order No.: 7349	4	1 S V	site samples?	F=265		Quarter quoted TAT (100%	surcharge)	
Contract/Quote No.:		AND THE PROPERTY OF THE PROPER	hazardous to health?*	□ No ■ Non-Potable	1	For urgent testing, please contacting samples to confirm availabilities	Under Street with A trust spiriture	
Sample Name* (unique sample identifier)	Sample Type (Type of product/substance E.g., Potoble Water, Soil, Biota Pro	e/material duct, Apple, Cow	Sample Description (additional sample information, to appear on res	Sampled Date (used to determine holding time, if applical	/test o	sting Requirements* or compounds to be tested for)	AQ Ref.	
QAQC01	Groundwat		Groundwater 21/08/18		1000	DX - PFCS01		
QAQC02	1		1			1	4	
QAQC03		100000000000000000000000000000000000000	1					
QAQC04				1				
QAQC95				22/08/18	1 11	VACON LANGUAGE WANTERS SECURITY		
QAQC\$6								
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*Required information					_1	21 N 181 N	1	
Comments/Additional Inf	formation:			eived By (Name):* Luuren	Mockett	7:30 NZ Cauriers 23/03/18	MI	

Issue Date: February 2018

Attachment No: SR-033/1